



Control Number: 51415



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Minimum benefits	The benefit payable will never be less than the frozen accrued benefit as of July 1, 1997, under the prior plan.
Primary Social Security benefit	<p>The annual amount payable under the Social Security Act as amended in effect at the employee's date of retirement. The date as of which the amount is to be determined is:</p> <ol style="list-style-type: none"> (1) In the case of an employee (including deferred vested employees) retiring on or after normal retirement date, normal retirement date. (2) In the case of an employee retiring prior to normal retirement date, the later of employee's 62nd birthday or actual retirement date. <p>Early retirees and deferred vested employees are assumed to have no earnings after termination in determining the amount of this benefit.</p>
Long-term disability and paid leaves	Participants do not receive company credits while on long-term disability. For the grandfathered formula, the final average pay will be determined as of the date on which the participant became disabled. Vesting service continues.
Unpaid leave	No compensation for annual compensation credit. Vesting service continues.

Eligibility for Benefits

Normal retirement	All members at or after their Normal Retirement Date
Early retirement	Any time after attainment of age 55 and completion of five years of vesting
Postponed retirement	Retirement after NRD.
Vested	<p>The participant's cash balance account is 100% vested when any one of the following applies</p> <ol style="list-style-type: none"> (1) Three years of vesting service (2) Attainment of age 55 while an employee (3) Death prior to termination (4) Upon disability.
Disability	All participants who become permanently and totally disabled. Permanent and total disability is determined by reference to the LTD plan covering that participant.
Surviving spouse	The surviving spouse of a participant who retired or is eligible to retire on normal or early retirement.
Preretirement death	Beneficiary of participant who dies after becoming vested.

Benefits Paid Upon the Following Events

Normal retirement

Grandfathered employees must elect either the cash balance or the grandfathered formula. For purposes of this valuation, the employee is assumed to elect the formula with the higher present value. Employees with a prior plan frozen benefit get the better of the cash balance benefit and the prior plan frozen benefit. For all other employees, the Cash Balance Benefit is determined as of Normal Retirement Date.

Early retirement

Greater of (1) if applicable or (2):

- (1) The grandfathered accrued benefit and the prior plan frozen are payable subject to reduction according to the following schedule if payments commence prior to the normal retirement date.

<i>Age at Retirement</i>	<i>Percent of Benefit Payable</i>
64	100%
63	100%
62	100%
61	95%
60	90%
59	84%
58	78%
57	72%
56	66%
55	60%

- (2) The Cash Balance Benefit determined as of the Early Retirement Date.

Deferred vested retirement

Greater of (1) if applicable or (2):

- (1) Grandfathered accrued benefit payable at age 65, or if earlier reduced 5% per year from age 65, 6% per year from age 60 and 7.5% per year compounded from age 55.
- (2) Vested cash balance account

Disability retirement

The greatest of grandfathered accrued benefit, if eligible, based on projected service and frozen pay deferred to age 65, prior plan frozen benefit if eligible and cash balance account with continued pay credits.

Preretirement death

If the beneficiary is the spouse and the participant is a grandfathered/protected plan participant, then:

- (1) For an active participant who dies on or after 55th birthday but before retirement, a monthly benefit equal to 50% of the benefit accrued to the date of death without reduction for early retirement is payable immediately as a life annuity to a qualifying spouse.
- (2) For an active participant who dies after completing five or more years of vesting service but before age 55, a deferred monthly benefit equal to 50% of the benefit accrued to the date of death reduced as for early retirement is payable as a life annuity to a

qualifying spouse. Benefit commencement is deferred to when the deceased participant would have attained age 55

- (3) For a deferred vested participant who dies before benefits commence, a monthly benefit equal to 50% of the deferred vested benefit reduced for early commencement (as for deferred vesteds) is payable as a life annuity to a qualifying spouse. If death occurs before age 55, the benefit to the spouse is deferred to when the deceased participant would have attained age 55.

The spouse's benefit is actuarially reduced for each year by which the spouse is more than five years younger than the participant.

For all employees, the minimum benefit is the cash balance account immediate annuity, which is also payable if the beneficiary is not the participant's spouse.

Other Plan Provisions

Form of payment

The following are available for those participants who did not work an hour of service on or after January 1, 2003:

- Full lump sum payment.
- Monthly payment:
 - Single life annuity
 - 50% joint annuity (spouse or other beneficiary).

A one-time option to elect a lump sum of the accrued benefit for terminated vested participants whose benefit was determined in no way by reference to either the AEP or CSW cash balance formulas was offered during the period from May 1, 2012 through June 30, 2012. Participants eligible for the window were also permitted to elect any of the other optional forms of payment generally applicable to such a participant under the normal terms of the plan document. Any participant who elected to commence benefits under this window, regardless of lump sum or annuity election, had a benefit commencement date of August 1, 2012.

The following are available for those participants who work an hour of service on or after January 1, 2003

- Full lump sum payment.
- Combination of partial lump sum (25%, 50% or 75% of full lump sum) with remainder paid as a monthly benefit (see below).
- Monthly payment:
 - Single life annuity.
 - Joint annuities (spouse or other beneficiary).
 - Available in 50%, 75%, 100%.

Form of payment conversion for
non-417(e) covered conversions

- Cash balance 7.50% interest and the applicable 417(e) Mortality Table
- Grandfathered benefit Factors as specified in Tables I, II, III and IV of Exhibit A to the American Electric Power System Retirement Plan document. 7.50% interest and the 1951 Group Annuity male mortality table to the extent not covered by Tables I, II, III and IV.

Pension Increases None.

Member Contributions None.

Maximum on benefits and pay All benefits and pay for any calendar year may not exceed the maximum limitations for that year as defined in the Internal Revenue Code. The plan provides for increasing the dollar limits automatically as such changes become effective. Increases in the dollar limits are assumed for determining pension cost but not for determining contributions.

Plan status Continuing accruals. All new entrants to plan are covered under former East plan provision.

Future Plan Changes

Willis Towers Watson is not aware of any future plan changes that are required to be reflected

Changes in Benefits Valued Since Prior Year

None.

Appendix C: Results by business unit

AMERICAN ELECTRIC POWER QUALIFIED RETIREMENT PLAN SUMMARY OF PLAN PARTICIPANTS FOR THE 2020 VALUATION

Location	Vested Actives	Non-Vested Actives	Total Actives	Retirees Receiving Benefits	Beneficiaries	Deferred Vesteds	Total Inactives	Total Participants
140 Appalachian Power Co - Distribution	971	118	1,089	937	269	156	1,362	2,451
215 Appalachian Power Co - Generation	614	22	636	745	162	75	982	1,618
150 Appalachian Power Co - Transmission	3	0	3	115	16	6	137	140
Appalachian Power Co - FERC	1,588	140	1,728	1,797	447	237	2,481	4,209
225 Cedar Coal Co	0	0	0	72	20	8	100	100
Appalachian Power Co - SEC	1,588	140	1,728	1,869	467	245	2,581	4,309
211 AEP Texas Central Company - Distribution	865	100	965	729	175	279	1,183	2,148
147 AEP Texas Central Company - Generation	0	0	0	0	29	0	29	29
169 AEP Texas Central Company - Transmission	138	21	159	71	20	27	118	277
AEP Texas Central Co	1,003	121	1,124	800	224	306	1,330	2,454
119 AEP Texas North Company - Distribution	219	40	259	148	43	59	250	509
166 AEP Texas North Company - Generation	0	0	0	70	30	23	123	123
192 AEP Texas North Company - Transmission	77	18	95	17	8	5	30	125
AEP Texas North Co	0	0	0	0	0	0	0	0
AEP Texas	1,299	179	1,478	1,035	305	393	1,733	3,211
170 Indiana Michigan Power Co - Distribution	466	129	595	503	173	105	781	1,376
132 Indiana Michigan Power Co - Generation	213	22	235	272	58	78	408	643
190 Indiana Michigan Power Co - Nuclear	952	99	1,051	402	54	258	714	1,765
120 Indiana Michigan Power Co - Transmission	118	27	145	98	15	9	122	267
280 Ind Mich River Transp Lakin	186	7	193	97	31	47	175	366
Indiana Michigan Power Co - SEC	1,835	284	2,219	1,372	331	497	2,200	4,419
110 Kentucky Power Co - Distribution	219	40	259	180	42	24	246	505
117 Kentucky Power Co - Generation	27	2	29	98	20	14	132	161
180 Kentucky Power Co - Transmission	0	0	0	11	0	2	13	13
600 Kentucky Power Co - Kammer Actives	4	0	4	8	0	1	9	13
701 Kentucky Power Co - Mitchell Actives	201	5	206	0	0	0	0	206
702 Kentucky Power Co - Mitchell Inactives	0	0	0	123	10	23	156	156
Kentucky Power Co	451	47	498	420	72	64	556	1,054
250 Ohio Power Co - Distribution	1,353	266	1,619	1,388	372	202	1,962	3,581
160 Ohio Power Co - Transmission	3	1	4	169	48	14	231	235
Ohio Power Co	1,356	267	1,623	1,557	420	216	2,193	3,816
167 Public Service Co of Oklahoma - Distribution	536	68	604	361	127	140	628	1,232
198 Public Service Co of Oklahoma - Generation	304	26	330	137	39	55	231	561
114 Public Service Co of Oklahoma - Transmission	85	15	100	41	10	16	67	167
Public Service Co of Oklahoma	925	109	1,034	539	176	211	926	1,960
159 Southwestern Electric Power Co - Distribution	456	43	499	146	59	48	253	752
168 Southwestern Electric Power Co - Generation	572	32	604	153	69	43	265	869
161 Southwestern Electric Power Co - Texas - Distribution	185	34	219	85	30	31	146	365
111 Southwestern Electric Power Co - Texas - Transmission	0	0	0	0	0	0	0	0
194 Southwestern Electric Power Co - Transmission	89	15	104	25	7	12	44	148
Southwestern Electric Power Co	1,302	124	1,426	409	165	134	708	2,134
230 Kingsport Power Co - Distribution	43	8	51	42	11	2	55	106
260 Kingsport Power Co - Transmission	0	0	0	10	1	1	12	12
Kingsport Power Co	43	8	51	52	12	3	67	118
210 Wheeling Power Co - Distribution	46	5	51	43	17	7	67	118
200 Wheeling Power Co - Transmission	0	0	0	2	4	0	6	6
Wheeling Power Co	46	5	51	45	21	7	73	124
103 American Electric Power Service Corporation	4,944	1,059	6,003	2,871	1,192	1,187	5,250	11,253
293 Elmwood	0	0	0	8	0	24	32	32
292 AEP River Operations LLC	0	0	0	29	0	218	247	247
American Electric Power Service Corp	4,944	1,059	6,003	2,908	1,192	1,429	5,529	11,532
270 Cook Coal Terminal	19	6	25	10	3	4	17	42
AEP Generating Company	19	6	25	10	3	4	17	42
104 Cardinal Operating Company	1	0	1	222	40	97	359	360
181 Ohio Power Co - Generation	99	0	99	1,081	267	213	1,561	1,660
AEP Generation Resources - FERC	100	0	100	1,303	307	310	1,920	2,020
290 Conesville Coal Preparation Company	0	0	0	11	1	2	14	14
AEP Generation Resources - SEC	100	0	100	1,314	308	312	1,934	2,034
171 CSW Energy, Inc	0	0	0	4	1	23	28	28
175 AEP Energy Partners	132	66	218	4	0	6	10	228
419 Onsite Partners	16	7	23	0	0	0	0	23
AEP Energy Supply	248	93	341	1,322	309	341	1,972	2,313
143 AEP Pro Serv, Inc	0	0	0	1	0	2	3	3
AEP Pro Serv, Inc	0	0	0	1	0	2	3	3
245 Dolet Hills	159	19	178	5	0	29	34	212
Dolet Hills	159	19	178	5	0	29	34	212
Total	14,315	2,340	16,655	11,544	3,473	3,575	18,592	35,247

AMERICAN ELECTRIC POWER - QUALIFIED RETIREMENT PLAN
SUMMARY OF ASC 715-30 VALUATION RESULTS AS OF JANUARY 1, 2020

Location	Valuation Earnings	Market-Related Value of Assets	Fair Value of Assets	Accumulated Benefit Obligation	Projected Benefit Obligation	January 1, 2020 Pre-Tax AOCI
140 Appalachian Power Co - Distribution	\$109,664,027	\$318,039,190	\$333,449,279	\$328,713,692	\$339,577,865	\$92,090,137
215 Appalachian Power Co - Generation	\$66,844,299	271,009,684	284,141,032	259,458,673	268,162,973	45,737,402
150 Appalachian Power Co - Transmission	\$169,736	16,756,832	17,568,758	27,374,551	27,374,551	15,736,293
Appalachian Power Co - FERC	\$176,678,062	\$605,805,706	\$635,159,069	\$615,546,916	\$635,115,389	\$153,563,832
225 Cedar Coal Co	\$0	4,811,542	5,044,677	2,363,120	2,363,120	2,008,127
Appalachian Power Co - SEC	\$176,678,062	\$610,617,248	\$640,203,746	\$617,910,036	\$637,478,509	\$155,571,959
211 AEP Texas Central Company - Distribution	\$97,295,280	275,942,285	289,312,635	285,885,800	299,424,629	127,187,398
147 AEP Texas Central Company - Generation	\$0	13,293,139	13,937,237	2,306,383	2,306,383	(11,630,854)
169 AEP Texas Central Company - Transmission	\$16,751,027	27,999,236	29,355,895	32,728,665	35,049,791	19,403,862
AEP Texas Central Co	\$114,046,307	\$317,234,660	\$332,605,767	\$320,921,048	\$336,780,803	\$134,960,406
119 AEP Texas North Company - Distribution	\$26,483,579	59,709,147	62,602,260	67,906,715	70,968,938	33,813,103
166 AEP Texas North Company - Generation	\$0	24,950,696	26,159,643	15,191,767	15,191,767	11,142,246
192 AEP Texas North Company - Transmission	\$9,674,506	11,944,054	12,522,784	12,059,471	13,310,604	3,282,095
AEP Texas North Co	\$36,158,085	\$96,603,897	\$101,284,687	\$95,157,953	\$99,471,309	\$48,237,444
AEP Texas	\$150,204,392	\$413,838,557	\$433,890,454	\$416,079,001	\$436,252,112	\$183,197,850
170 Indiana Michigan Power Co - Distribution	\$58,528,036	167,405,959	175,517,352	156,958,194	163,683,918	33,511,027
132 Indiana Michigan Power Co - Generation	\$25,355,265	110,265,303	115,608,035	95,928,492	97,886,100	2,259,029
190 Indiana Michigan Power Co - Nuclear	\$129,292,128	254,474,146	266,804,291	256,922,366	272,081,714	21,465,292
120 Indiana Michigan Power Co - Transmission	\$15,059,788	33,998,574	35,645,921	37,256,563	39,212,220	8,875,099
280 Ind Mich River Transp Lakin	\$16,513,326	37,650,872	39,475,186	33,665,177	36,337,494	723,122
Indiana Michigan Power Co - SEC	\$244,748,543	\$603,794,854	\$633,050,785	\$580,730,792	\$609,201,446	\$66,833,569
110 Kentucky Power Co - Distribution	\$25,927,664	66,930,132	70,173,127	81,622,997	83,888,673	24,051,145
117 Kentucky Power Co - Generation	\$3,197,181	30,149,575	31,610,426	28,902,396	29,218,781	3,064,223
180 Kentucky Power Co - Transmission	\$0	903,008	946,762	2,987,335	2,987,335	2,511,537
600 Kentucky Power Co - Kammer Actives	\$282,591	5,682,205	5,957,527	3,504,648	3,504,648	1,293,382
701 Kentucky Power Co - Mitchell Actives	\$22,682,264	26,916,191	28,220,372	24,682,878	27,967,198	9,462,549
702 Kentucky Power Co - Mitchell Inactives	\$0	49,118,642	51,498,608	39,496,789	39,496,789	3,773,872
Kentucky Power Co	\$52,089,700	\$179,699,753	\$188,406,822	\$181,197,043	\$187,063,424	\$44,156,708
250 Ohio Power Co - Distribution	\$158,413,564	441,252,691	462,632,897	419,965,898	444,180,022	146,708,242
160 Ohio Power Co - Transmission	\$329,731	36,210,538	37,965,063	38,838,047	38,860,113	25,822,875
Ohio Power Co	\$158,743,295	\$477,463,229	\$500,597,960	\$458,803,945	\$483,040,135	\$172,531,117
167 Public Service Co of Oklahoma - Distribution	\$62,529,828	162,855,950	170,746,879	152,353,142	162,136,448	49,575,055
198 Public Service Co of Oklahoma - Generation	\$35,916,045	82,383,167	86,374,914	78,735,816	83,033,285	17,031,797
114 Public Service Co of Oklahoma - Transmission	\$10,971,874	19,478,356	20,422,149	17,602,640	19,491,305	3,487,062
Public Service Co of Oklahoma	\$109,417,747	\$264,717,473	\$277,543,942	\$246,691,598	\$264,661,038	\$70,073,914
159 Southwestern Electric Power Co - Distribution	\$52,452,583	104,917,845	110,001,474	108,641,968	116,904,067	40,703,863
168 Southwestern Electric Power Co - Generation	\$64,882,557	111,962,199	117,408,120	124,500,548	132,021,133	39,841,288
161 Southwestern Electric Power Co - Texas - Distribution	\$22,253,618	50,018,396	52,441,959	48,512,542	51,752,294	16,819,025
111 Southwestern Electric Power Co - Texas - Transmission	\$0	0	0	0	0	831,581
194 Southwestern Electric Power Co - Transmission	\$11,052,779	17,215,014	18,049,140	14,516,711	16,616,628	2,118,067
Southwestern Electric Power Co	\$150,641,537	\$284,133,454	\$297,900,693	\$296,171,769	\$317,294,122	\$100,313,624
230 Kingsport Power Co - Distribution	\$4,764,480	13,853,989	14,525,262	14,536,837	15,058,801	4,171,095
260 Kingsport Power Co - Transmission	\$0	1,260,554	1,321,632	2,058,070	2,058,070	1,380,479
Kingsport Power Co	\$4,764,480	\$15,114,543	\$15,846,894	\$16,594,907	\$17,116,871	\$5,551,574
210 Wheeling Power Co - Distribution	\$4,964,231	15,797,931	16,563,395	14,228,285	14,799,882	4,252,721
200 Wheeling Power Co - Transmission	\$0	727,376	762,620	361,414	361,414	532,589
Wheeling Power Co	\$4,964,231	\$16,525,307	\$17,326,015	\$14,589,699	\$15,161,296	\$4,785,310
103 American Electric Power Service Corporation	\$712,758,554	1,424,145,503	1,493,150,244	1,779,952,981	1,874,638,201	568,070,873
293 Etrmwood	\$0	5,905,397	6,191,533	1,308,842	1,308,842	(4,326,795)
292 AEP River Operations LLC	\$0	51,736,593	54,243,409	13,831,925	13,831,925	(36,484,991)
American Electric Power Service Corp	\$712,758,554	\$1,481,787,493	\$1,553,585,186	\$1,795,093,748	\$1,889,778,968	\$527,259,087
270 Cook Coal Terminal	\$2,492,816	4,475,479	4,692,331	3,034,352	3,302,969	(921,012)
AEP Generating Company	\$2,492,816	\$4,475,479	\$4,692,331	\$3,034,352	\$3,302,969	(921,012)
104 Cardinal Operating Company	\$48,313	95,082,164	99,689,221	67,712,619	67,735,692	(31,953,529)
181 Ohio Power Co - Generation	\$10,991,067	347,789,152	364,640,729	237,280,711	238,553,116	65,028,693
AEP Generation Resources - FERC	\$11,039,380	\$442,871,316	\$464,329,950	\$304,993,330	\$306,288,808	\$33,075,164
290 Conesville Coal Preparation Company	\$0	4,424,869	4,639,269	2,787,726	2,787,726	72,704
AEP Generation Resources - SEC	\$11,039,380	\$447,296,185	\$468,969,219	\$307,781,056	\$309,076,534	\$33,147,868
171 CSW Energy, Inc	\$0	2,581,872	2,706,972	2,859,916	2,859,916	980,219
175 AEP Energy Partners	\$23,516,295	9,092,697	9,533,269	12,197,289	14,676,388	5,575,475
419 Onsite Partners	\$2,905,017	364,783	382,458	639,861	1,169,743	521,176
AEP Energy Supply	\$37,460,692	\$459,335,537	\$481,591,918	\$323,478,122	\$327,782,581	\$40,224,738
143 AEP Pro Serv Inc	\$0	961,114	1,007,683	1,170,929	1,170,929	75,946
AEP Pro Serv, Inc	\$0	\$961,114	\$1,007,683	\$1,170,929	\$1,170,929	\$75,946
245 Dolet Hills	\$16,972,208	3,456,957	3,624,458	5,563,821	6,262,856	(67,277)
Dolet Hills	\$16,972,208	\$3,456,957	\$3,624,458	\$5,563,821	\$6,262,856	(\$67,277)
Total	\$1,821,936,257	\$4,815,920,998	\$5,049,268,887	\$4,959,109,762	\$5,195,567,256	\$1,369,587,307

American Electric Power System Retirement Plan

AMERICAN ELECTRIC POWER
QUALIFIED PENSION PLAN
2020 NET PERIODIC PENSION COST

Location	Service Cost	Interest Cost	Expected Return on Assets	"Other" Cost		Total "Other" Cost	Net Periodic Pension Cost
				Amortizations			
				PSC	(G/L)		
140 Appalachian Power Co - Distribution	6,278,752	10,832,051	(17,505,482)	0	5,973,310	(700,121)	5,578,631
215 Appalachian Power Co - Generation	4,160,192	8,510,457	(14,916,888)	0	4,717,094	(1,689,337)	2,470,855
150 Appalachian Power Co - Transmission	0	854,385	(922,328)	0	481,529	413,586	413,586
Appalachian Power Co - FERC	\$10,438,944	\$20,196,893	(\$33,344,698)	\$0	\$11,171,933	(\$1,975,872)	\$8,463,072
225 Cedar Coal Co	0	73,243	(264,836)	0	41,568	(150,025)	(150,025)
Appalachian Power Co - SEC	\$10,438,944	\$20,270,136	(\$33,609,534)	\$0	\$11,213,501	(\$2,125,897)	\$8,313,047
211 AEP Texas Central Company - Distribution	6,440,496	9,474,043	(15,188,388)	0	5,268,999	(447,346)	5,993,150
147 AEP Texas Central Company - Generation	0	70,497	(731,680)	0	40,570	(620,813)	(620,813)
169 AEP Texas Central Company - Transmission	1,129,132	1,122,497	(1,541,131)	0	616,540	197,906	1,327,038
AEP Texas Central Co	\$7,569,628	\$10,667,037	(\$17,461,199)	\$0	\$5,924,109	(\$870,053)	\$6,699,575
119 AEP Texas North Company - Distribution	1,825,961	2,263,611	(3,286,505)	0	1,248,372	225,478	2,051,439
166 AEP Texas North Company - Generation	0	471,616	(1,373,334)	0	267,229	(634,489)	(634,489)
192 AEP Texas North Company - Transmission	634,351	432,753	(857,423)	0	234,139	9,469	643,820
AEP Texas North Co	\$2,460,312	\$3,167,980	(\$5,317,262)	\$0	\$1,748,740	(\$399,542)	\$2,060,770
AEP Texas	\$10,029,940	\$13,835,017	(\$22,778,461)	\$0	\$7,673,849	(\$1,269,595)	\$8,760,345
170 Indiana Michigan Power Co - Distribution	3,568,120	5,236,686	(9,214,342)	0	2,879,266	(1,098,390)	2,469,730
132 Indiana Michigan Power Co - Generation	1,578,605	3,117,633	(6,099,212)	0	1,721,856	(1,229,723)	348,882
190 Indiana Michigan Power Co - Nuclear	8,331,914	8,816,468	(14,006,741)	0	4,786,026	(404,247)	7,927,667
120 Indiana Michigan Power Co - Transmission	923,790	1,262,550	(1,871,346)	0	689,759	80,963	1,004,753
280 Ind Mich River Transp Lakin	908,347	1,160,732	(2,072,376)	0	639,191	(272,453)	635,894
Indiana Michigan Power Co - SEC	\$15,310,776	\$19,594,069	(\$33,234,017)	\$0	\$10,716,098	(\$2,923,850)	\$12,386,926
110 Kentucky Power Co - Distribution	1,535,382	2,671,271	(3,683,962)	0	1,475,635	462,944	1,998,306
117 Kentucky Power Co - Generation	181,228	925,003	(1,859,490)	0	513,970	(220,517)	(39,289)
180 Kentucky Power Co - Transmission	0	93,614	(49,703)	0	52,548	96,459	96,459
600 Kentucky Power Co - Kammner Actives	0	106,336	(312,759)	0	61,648	(144,775)	(144,775)
701 Kentucky Power Co - Mitchell Actives	1,398,561	935,430	(1,481,518)	0	491,954	(54,134)	1,344,427
702 Kentucky Power Co - Mitchell Inactives	0	1,236,777	(2,703,583)	0	694,764	(772,042)	(772,042)
Kentucky Power Co.	\$3,115,151	\$5,968,431	(\$9,891,015)	\$0	\$3,290,519	(\$632,065)	\$2,483,086
250 Ohio Power Co - Distribution	9,613,793	14,200,722	(24,287,387)	0	7,813,304	(2,273,361)	7,340,432
160 Ohio Power Co - Transmission	12,649	1,208,517	(1,893,097)	0	683,565	(101,015)	(88,366)
Ohio Power Co	\$9,626,442	\$15,409,239	(\$26,280,484)	\$0	\$8,496,869	(\$2,374,376)	\$7,252,066
167 Public Service Co of Oklahoma - Distribution	4,178,296	5,194,591	(8,963,901)	0	2,852,045	(917,265)	3,261,031
198 Public Service Co of Oklahoma - Generation	2,382,553	2,651,129	(4,534,526)	0	1,460,589	(422,808)	1,959,745
114 Public Service Co of Oklahoma - Transmission	717,661	638,014	(1,072,126)	0	342,860	(91,252)	626,409
Public Service Co of Oklahoma	\$7,278,510	\$8,483,734	(\$14,570,553)	\$0	\$4,655,494	(\$1,431,325)	\$5,847,185
159 Southwestern Electric Power Co - Distribution	3,400,330	3,738,314	(5,774,878)	0	2,056,389	19,825	3,420,155
168 Southwestern Electric Power Co - Generation	4,317,273	4,235,145	(6,163,713)	0	2,322,305	393,737	4,711,010
161 Southwestern Electric Power Co - Texas - Distribution	1,443,804	1,653,595	(2,753,108)	0	910,344	(189,169)	1,254,635
111 Southwestern Electric Power Co - Texas - Transmission	0	0	0	0	0	0	0
194 Southwestern Electric Power Co - Transmission	720,594	548,221	(947,547)	0	292,293	(107,033)	613,561
Southwestern Electric Power Co	\$9,882,001	\$10,175,275	(\$15,639,246)	\$0	\$5,581,331	\$117,360	\$9,999,361
230 Kingsport Power Co - Distribution	303,475	484,182	(762,550)	0	264,890	(13,478)	289,997
260 Kingsport Power Co - Transmission	0	63,863	(69,383)	0	36,202	30,682	30,682
Kingsport Power Co	\$303,475	\$548,045	(\$831,933)	\$0	\$301,092	\$17,204	\$320,679
210 Wheeling Power Co - Distribution	335,947	475,040	(869,548)	0	260,336	(134,172)	201,775
200 Wheeling Power Co - Transmission	0	10,807	(40,036)	0	6,357	(22,872)	(22,872)
Wheeling Power Co	\$335,947	\$485,847	(\$909,584)	\$0	\$266,693	(\$157,044)	\$178,903
103 American Electric Power Service Corporation	41,688,673	59,819,815	(78,387,680)	0	32,975,637	14,407,772	56,074,445
293 Elmwood	0	39,800	(325,044)	0	23,023	(262,221)	(262,221)
292 AEP River Operations LLC	0	418,062	(2,847,680)	0	243,309	(2,186,309)	(2,186,309)
American Electric Power Service Corp	\$41,688,673	\$60,277,677	(\$81,580,404)	\$0	\$33,241,969	\$11,959,242	\$53,625,915
270 Cook Coal Terminal	138,653	108,788	(246,339)	0	58,101	(79,450)	59,203
AEP Generating Company	\$138,653	\$108,788	(\$246,339)	\$0	\$58,101	(\$79,450)	\$59,203
104 Cardinal Operating Company	2,737	2,125,684	(5,233,503)	0	1,191,498	(1,916,321)	(1,913,584)
181 Ohio Power Co - Generation	607,134	7,456,434	(19,142,976)	0	4,198,245	(7,490,287)	(6,883,163)
AEP Generation Resources - FERC	\$609,871	\$9,582,118	(\$24,376,479)	\$0	\$5,387,743	(\$9,406,618)	(\$8,796,747)
290 Conestoga Coal Preparation Company	0	86,513	(243,553)	0	49,037	(108,003)	(108,003)
AEP Generation Resources - SEC	\$609,871	\$9,668,631	(\$24,620,032)	\$0	\$5,436,780	(\$9,514,621)	(\$8,904,750)
171 CSW Energy, Inc	0	89,612	(142,111)	0	50,307	(2,192)	(2,192)
175 AEP Energy Partners	1,528,325	520,871	(500,479)	0	258,164	278,556	1,806,881
419 Onsite Partners	168,056	43,107	(20,078)	0	20,576	43,605	211,661
AEP Energy Supply	\$2,306,252	\$10,322,221	(\$25,282,700)	\$0	\$5,765,827	(\$9,194,652)	(\$6,888,400)
143 AEP Pro Serv, Inc	0	37,261	(52,902)	0	20,597	4,956	4,956
AEP Pro Serv, Inc	\$0	\$37,261	(\$52,902)	\$0	\$20,597	\$4,956	\$4,956
245 Dolet Hills	1,104,255	233,518	(190,277)	0	110,166	153,407	1,257,662
Dolet Hills	\$1,104,255	\$233,518	(\$190,277)	\$0	\$110,166	\$153,407	\$1,257,662
Total	\$111,537,019	\$165,749,258	(\$265,077,449)	\$0	\$91,392,106	(\$7,936,085)	\$103,600,934
Total without Dolet Hills	\$110,432,764	\$165,515,740	(\$264,887,172)	\$0	\$91,281,940	(\$8,089,492)	\$102,343,272

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Appendix D: Statement of funding-related risks of plan in accordance with ASOP No. 51

Potentially Significant Risks Associated with the Plan

The following sections discuss certain risks associated with the American Electric Power System Retirement Plan. The specific risks discussed below do not represent a comprehensive list of all risks that could potentially affect the plan, its participants, the sponsor, or any other party. In our professional judgment, we believe these risks to be most relevant to the plan's future financial condition. Not all possible sources of risk were considered. We have not evaluated the ability or willingness of the plan sponsor (or members of their controlled group) to make contributions to the plan when due, nor have we assessed the likelihood or consequences of potential future changes in applicable law. Nothing contained in this report is intended to provide investment advice.

The results shown in this report rely on assumptions regarding future economic and demographic experience. Actual future experience will deviate from the actuarial assumptions, and thus future actuarial measurements and future contribution requirements will differ (perhaps significantly) from the current measurements and contribution requirements presented in this report. Following is a discussion of some of the risks that have the potential to significantly increase the future contributions needed to satisfy legal requirements and secure the benefits of participants. While the discussion below focuses on elements that can increase contributions, contributions may also significantly decline, although not below \$0, if these elements move in the opposite direction than discussed below. Note also that any assessment of the risk provided below is speculative and made by the actuary who may not have all the information necessary to evaluate the significance of the risk to the company or plan participants of changes in the plan's funded status; the plan sponsor and its advisors should consider the assessment and any reasons given, and other information, and come to their own conclusions as to the significance of the risk presented. A more complete understanding of these or other risks would require a separate analysis. Such analysis would provide information about the consequences of different plausible experience and about the severity of adverse experience that could be tolerated within a range of funding levels. We recommend that such an analysis be performed or considered.

We also note that the financial condition of a plan, as well as the contributions caused by this condition, tend to be highly leveraged amounts. When referring to a plan's financial condition below, we generally mean the difference between the plan's assets and its liabilities. As each of these numbers is typically much larger than their difference, even a small change in either one can cause a large percentage change in the financial condition and the resulting contributions.

Financial Risks

Willis Towers Watson's Cost & Risk Management Channel is updated each year based on the most recent actuarial valuation and performs a high-level projection of funding requirements over the next ten years, taking into account the projected stabilized interest rates. AEP has access to this tool as well as the ability to perform their own "what-if" scenarios if so desired. This tool can assist in AEP's understanding and assessment of the financial risks in this plan.

Asset-Liability Mismatch Risk

There is generally a substantial risk to a plan's financial condition if the changes in asset values are not matched by changes in the value of liabilities. For this plan, this risk is somewhat mitigated because a portion of the plan's assets are invested in securities that are expected to move in the same direction and by approximately the same magnitude as expected liabilities. The risk still exists because some of the plan's assets are invested in securities that would not be expected to move in a predictable pattern relative to plan liabilities. The plan is expected to pay significant lump sum payments that are difficult to match using securities, in part due to the 4% interest credit guarantee on cash balance benefits.

The plan sponsor has already taken actions to mitigate this risk, as an Asset-Liability Study is performed regularly by AEP's investment advisors. The plan sponsor currently monitors the plan's funded status monthly in order to adjust the asset allocation between equities and fixed income based on certain funded status triggers.

Investment Risk

Approximately 60% of plan assets appears to be invested in a portfolio of fixed income investments which is designed to respond to market changes in a manner similar to what would occur with respect to plan benefit obligations. The credit quality of the investments ranges. The risk of default is generally higher at the lower end of the investment quality spectrum, and default on an issue that is significant to the portfolio would result in a diminution in asset value with no corresponding change to benefit obligations. U.S. funding rules require valuation at interest rates determined from yields on corporate bonds rated A and higher. The credit quality difference between assets and obligations present a risk that changing market perceptions of risk could result in disparate returns.

Approximately 40% of the plan's assets are invested in return-seeking asset classes that can experience volatile returns. Several consecutive years of moderately poor returns or a single year of exceptionally poor returns may cause a significant increase in minimum required contributions or in contributions required to reach desired funding targets (e.g., to fully fund plan termination liability, to fully fund the plan under the minimum funding rules, to avoid PBGC variable rate premiums or an ERISA §4010 filing, to avoid benefit restrictions or to meet other goals of the plan sponsor). Failure to compensate for adverse investment experience with increased contributions could result in further degradation of the funded status of the plan over time, even if investments return at expected rates thereafter.

Generally there is a substantial risk to a plan's financial condition if investment returns are lower than expected. In this situation the risk is partially mitigated because a portion of the plan's assets are invested in assets that are expected to move approximately in tandem with plan liabilities.

We believe that a more detailed assessment would be beneficial to understanding this risk. The results provided to AEP regarding projected funding and other cash requirements are typically based on a single deterministic projection. Additional deterministic alternatives or stochastic analysis could provide additional insights into the potential for future cash requirements.

Effect of a 5% reduction in current assets without any offsetting reduction in liability

Measure ¹ 2020 Plan Year	Before	After	Increase	
			\$ Amount	Percentage
Funding Shortfall ²	220,523,216	428,476,281	207,953,065	94.30%
Greater of Minimum Required Contribution and Policy Contribution	111,538,000	111,538,000	0	0.00%

- 1 The funding shortfall and minimum required contribution shown above are determined without regard to any change in the plan's "at-risk" status caused by the reduction in assets. The plan is not currently at risk. Plans that are "at risk" are required to calculate these measures using more conservative assumptions (i.e., assumptions that increase funding target, target normal cost, and minimum required contributions) which will temporarily (until the plan's funded status improves) accelerate required plan funding. The effect on the minimum required contribution reflects only the amortization of the increase in funding shortfall, with such increase determined without regard to at risk assumptions. In addition, the effect on the minimum required contribution does not reflect any change in the expected PBGC variable rate premiums included in target normal cost that may be caused by the change in the plan's funded status.

Interest Rate Risk

The funding requirements use a measure of plan obligations based on recent high quality (rated A or better) corporate bond yields, adjusted so that they do not deviate by more than a specified percentage (which differs by year) from a 25-year average of such yields. If yields trend downward, the pension obligations and required contributions may increase significantly and the higher contribution rates may persist for a long period of time. The 25-year average currently results in the use of interest rates that are higher than current market yields. Under current law, the effect of the averaging will decline over time because the specified percentage will be increased from the current 10% to 30%. Accordingly, interest rates used to measure liabilities will decline over time if market yields remain at current levels, which will cause the plan's funded status to deteriorate and would be expected to result in larger minimum required contributions.

There is generally a substantial risk to a plan's financial condition due to changes in interest rates because plan liabilities increase as interest rates decline. In this situation the risk is somewhat mitigated because the plan's liabilities used to determine required contributions are determined based on stabilized interest rates that do not reflect current market conditions. In addition, a portion of plan assets are invested in a manner that should result in them moving in the same direction as liabilities. However, this risk still exists as the stabilized interest rate corridor will widen over time, thereby measuring liabilities at a lower rate as mentioned in the prior paragraph.

Effect of a reduction of 1% in the effective interest rate used to determine liabilities

Measure ¹ 2020 Plan Year	Before	After	Increase	
			\$ Amount	Percentage
Funding Target	4,277,258,567	4,610,083,604	332,825,037	7.78%
Target Normal Cost	101,389,545	108,666,557	7,277,012	7.18%
Minimum Required Contribution	101,389,545	108,666,557	7,277,012	7.18%

1. The funding targets and target normal costs shown above are determined without regard to "at-risk" provisions. The plan is not currently at risk. Plans that are "at risk" are required to calculate these measures using more conservative assumptions (i.e., assumptions that increase funding target, target normal cost, and minimum required contributions) which will temporarily (until the plan's funded status improves) accelerate required plan funding. The "after" minimum required contribution shown above is determined without regard to any change in the plan's "at-risk" status that might be caused by the reduction in the effective interest rate. The effect on the minimum required contribution reflects only the increase in target normal cost and the amortization of the increase in funding target, with both increases determined without regard to at risk assumptions. In addition, the effect on the minimum required contribution does not reflect any change in the expected PBGC variable rate premiums included in target normal cost that may be caused by the change in the plan's funded status.

Contribution Risk

We believe there is risk to the plan's financial condition if actual future contributions are not made as expected and/or the minimum required contribution is not satisfied. This near-term risk is somewhat mitigated because the plan has a substantial amount of funding balances. We have not evaluated the sponsor's willingness or ability to make required contributions.

Demographic Risks

The demographic risks discussed below are typically not as significant as the economic risks discussed above since both the degree of variation from assumptions and the effect on funded status tend to be smaller. However, situations do exist such as certain plan designs or corporate activity where the risks below may be more significant.

Longevity Risk

Measurements of the plan obligations are based on the assumptions of participant longevity described in Appendix A. Expert opinions about future longevity vary widely. If lifespans of plan participants exceed those expected under the assumptions used in preparing the results presented in this report, future measures of the plan obligation and future contribution requirements will gradually increase over time. Furthermore, an emerging pattern of longer lifespans or new research that increases the plausibility of longer lifespans may require a future adjustment in the mortality assumptions that results in a permanent significant increase in the plan obligation measurements and contribution requirements.

There is risk to the plan's financial condition if participant lifespans are longer than expected. However, this risk is partially mitigated since a portion of participants are expected to take a lump sum at termination or retirement; the effect of future changes in retiree mortality rates is not as significant as it would have been if all participants were expected to take an annuity.

Retirement Risk

The plan includes valuable early retirement subsidies. As a result, plan costs will increase if participants retire at younger ages than assumed. This might occur, for example, if business conditions were to cause reductions in force. Currently, retirements are expected to occur at various ages, using the retirement rates summarized in Appendix A, producing an average expected retirement age of 63.0 years.

Note that an experience study was performed in 2019 and the assumed retirement rates are based on that study and plan sponsor expectations.

Lump Sum Risk

The plan includes a lump sum provision determined using interest rates under IRC §417(e). Due to the required use of annuity substitution under IRS funding rules, the amount of these lump sums will often exceed the amount of funding target included in the valuation. As a result, there is a risk that the financial condition of the plan may decline, and required contributions increase, if participants retire or terminate employment in far greater numbers than assumed and elect to receive lump sums.

Note that an experience study was performed in 2019 and the form of payment assumption is based on that study and plan sponsor expectations.

Other Risks

Additional risks exist, including but not limited to liquidity risk, inflation risk, business-specific risk, and compliance risk. However, we believe these risks to not be as relevant nor significant as the risks already mentioned above on the plan's future financial condition, at this time. It is possible any one of these or more (in addition to any not listed) could become more prevalent and significant in the future depending on various factors including, but not limited to, changes in employee demographics, de-risking activities, legislative changes, unexpected economic movements, etc.

Historical Information

The following information is provided to demonstrate how fair value of assets, funding target, and funded percentage have varied over time. In order to better illustrate market movements, the effect of interest rate stabilization (first enacted in the Moving Ahead for Progress in the 21st Century (MAP 21) and since extended by subsequent legislation) has been excluded (i.e., the measures summarized below are calculated without reflecting stabilized interest rates). Note that the asset values and funding targets shown below were affected by the levels of plan sponsor contributions and benefits accruing, respectively, in addition to interest rates, asset gains and losses, and other experience

Plan Year	Market Value of Assets	Funding Target	Funded Percentage
2019	4,701,727,981	4,798,496,475	97.98%
2018	5,183,145,851	4,915,499,374	105.44%
2017	4,831,883,160	4,826,661,890	100.10%
2016	4,764,796,511	4,804,064,974	99.18%
2015	4,975,864,249	4,782,513,798	104.04%
2014	4,726,059,114	4,900,054,270	96.44%
2013	4,704,119,951	4,661,382,931	100.91%

Appendix E: Descriptions of funded status measures

Calculations for Funding Ratios Chart in Section 1: Summary of Results

Prior Year Ratios

<i>Purpose of Ratio</i>	<i>Asset Measure</i>	<i>Obligation Measure</i>
1 Test ability to apply funding balances to current year MRC	AVA - PFB	FTO
2 Quarterly contribution exemption test for current year	AVA – FSCB - PFB	FT
3 At-risk Prong 1 Test for current year	AVA – FSCB - PFB	FTO
4 At-risk Prong 2 Test for current year	AVA – FSCB - PFB	FTAR, but without loads

Current Year Ratios

<i>Purpose of Ratio</i>	<i>Asset Measure</i>	<i>Obligation Measure</i>
1 Test ability to apply funding balances to next year's MRC	Same as for analogous Prior Year Ratio	
2 Quarterly contribution exemption test for next year		
3 At-risk Prong 1 Test for next year		
4 At-risk Prong 2 Test for next year		
5 PBGC 4010 filing gateway test (PBGC FTAP) (to determine whether a filing is required next year for the current plan year)	AVA – FSCB - PFB	FTO ignoring interest rate stabilization
6 Exemption from establishing SAB in current year		
- If PFB applied to current year MRC	AVA - PFB	FT
- If PFB not applied to current year MRC	AVA	FT
7 Eliminate SABs in current year	AVA – FSCB – PFB	FT

Benefit Restriction Ratios

<i>Purpose of Ratio for Plan Year</i>	<i>Plan assets</i>	<i>Obligations</i>	<i>Year Ratio is Determined</i>
Adjusted Funding Target	[AVA if AVA/FTO >=	FTO ¹ + annuity	Current
Attainment Percentage (AFTAP) – Application of Benefit Restrictions under IRC 436	100%, AVA – FSCB – PFB otherwise] + annuity purchases for NHCEs in previous 2 years	purchases for NHCEs in previous 2 years	

¹ If plan sponsor is in bankruptcy, FTO is calculated using interest rates that are not stabilized for purposes of restrictions on accelerated payments

Definitions of terms

Term	Short for	Definition
FTAP	Funding target attainment percentage	$(AVA - FSCB - PFB) / FTO$
PBGC FTAP	FTAP for exemption from ERISA 4010	$(AVA - FSCB - PFB) / (FTO \text{ ignoring interest rate stabilization})$
FSCB	Funding standard carryover balance	Accumulated contributions in excess of those required in pre-PPA plan years, less amounts applied to MRC or forfeited
PFB	Prefunding balance	Accumulated contributions in excess of those required since PPA applied to the plan, to the extent the plan sponsor elected to create PFB, less amounts subsequently applied to MRC or forfeited
Funding balance	FSCB + PFB	
FTO	Ongoing funding target	Funding target as described in IRC 430, ignoring at-risk assumptions, equals FT for a plan that is not at-risk ¹
FTO ignoring stabilization	FTO calculated ignoring interest rate stabilization	Same as FTO if the full yield curve is used, or stabilized segment rates fall within the corridors
FTAR	At-risk funding target	Funding target reflecting at-risk assumptions and any applicable loads, as described in IRC 430(i), with no phase-in
FT	Funding target	Funding target used to calculate MRC Equals: <ul style="list-style-type: none"> ■ FTO if the plan is not at-risk ■ FTAR if the plan has been at risk for at least 5 consecutive plan years ■ Otherwise, $FTO + 20\% * (\# \text{ of consecutive years at-risk}) * (\text{the excess, if any, of FTAR over FTO})$.
FS	Funding shortfall (surplus)	$FT - (AVA - \text{funding balances})$
PBGC 4010 FS	Funding shortfall for determining whether a controlled group is exempt from an ERISA 4010 filing	FT (ignoring interest rate stabilization) - AVA See PBGC reporting requirements section of the report for more information.

¹ If plan sponsor is in bankruptcy, FTO is calculated using interest rates that are not stabilized for purposes of restrictions on accelerated payments

Term	Short for	Definition
SAB	Shortfall amortization base	An SAB is established each year equal to the FS less the present value of the SAs related to SABs established in earlier years. A plan may be exempt from establishing an SAB for a plan year in accordance with the test in the Funding Ratios chart in section 1.
TNC	Target normal cost	Present value of benefits expected to accrue, and expenses expected to be paid from plan assets, for the year. Reflects at-risk assumptions if the plan is at-risk (phased-in if plan has been at-risk for fewer than 5 consecutive years as described above)
SAI	Shortfall amortization installment	Amortization for an SAB established in a particular year. SAs are eliminated if FS is less than or equal to \$0
MRC	Minimum required contribution	TNC plus SAs as of the valuation date (assumes no funding waivers and plan is not fully funded). See section 2.4 for more details on this calculation
AVA	Actuarial value of plan assets	"Plan assets" under PPA, including discounted receivables and reflecting any smoothing. See section 2.3 for more details



American Electric Power
Non-UMWA Postretirement Health Care Plan

**Actuarial Valuation Report
Postretirement Welfare Cost for Fiscal Year Beginning
January 1, 2020 under U.S. GAAP**

**Employer Contributions for Plan Year Beginning
January 1, 2020**

April 2020

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II

American Electric Power Non-UMWA Postretirement Health Care Plan

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Purposes of valuation

American Electric Power (AEP) retained Willis Towers Watson US LLC (Willis Towers Watson), to perform an actuarial valuation of its postretirement welfare programs for the purpose of determining the following:

1. The value of benefit obligations as of January 1, 2020, and AEP's postretirement welfare cost for fiscal year ending December 31, 2020, in accordance with FASB Accounting Standards Codification Topic 715 (ASC 715-60). It is anticipated that a separate report will be prepared for year-end financial reporting and disclosure purposes.
2. Plan reporting information in accordance with FASB Accounting Standards Codification Topic 965 (ASC 965)
3. Expected contributions under the plan sponsor's funding policy for the 2020 plan year.
4. The estimated maximum tax-deductible contribution for the tax year in which the 2020 plan year ends as allowed by the Internal Revenue Code. The maximum tax-deductible contribution should be finalized in consultation with AEP's tax advisor.

Limitations

This valuation has been conducted for the purposes described above and may not be suitable for any other purpose. In particular, please note that there may be certain events that have occurred since the valuation date that are not reflected in the current valuation.

This valuation has been conducted in accordance with generally accepted actuarial principles and practices.

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Section 1: Summary of key results

Benefit cost, plan assets & obligations

All monetary amounts shown in U.S. Dollars

Fiscal Year Beginning		01/01/2020	01/01/2019
Benefit Cost/ (Income)	Net periodic postretirement benefit cost/(income)	(110,676,137)	(82,976,383)
Measurement Date		01/01/2020	01/01/2019
Plan Assets	Fair value of assets (FVA)	1,747,344,491	1,510,044,948
Benefit Obligations	Accumulated postretirement benefit obligation (APBO)	1,167,231,750	1,126,652,189
Funded Status	Funded status	580,112,741	383,392,759
Accumulated Other Comprehensive (Income)/Loss	Net prior service cost/(credit)	(285,461,153)	(343,305,273)
	Net loss/(gain)	239,597,249	410,564,569
	Total accumulated other comprehensive (income)/loss	(45,863,904)	67,259,296
Assumptions ¹	Discount rate	3.30%	4.30%
	Expected long-term return on plan assets	5.50%	6.25%
	Rate of compensation/salary increase	Rates vary by age from 3.5% to 11.5%	Rates vary by age from 3.5% to 12.0%
	Current health care cost trend rate	6.00%	6.25%
	Ultimate health care cost trend rate	4.50%	5.00%
	Year of ultimate trend rate	2026	2024
Participant Data	Census date	01/01/2020	01/01/2019
Plan reporting (ASC 965) for Plan Year Beginning		01/01/2020	01/01/2019
Present value of accumulated benefits		1,273,542,303	1,126,899,572
Market value of assets		1,747,344,891	1,510,044,948
Plan reporting discount rate		3.30%	4.30%

¹ Rates are expressed on an annual basis where applicable

Employer Contributions (net of Medicare subsidy)		Plan Year 2020	Plan Year 2019
Cash Flow	Funding policy contributions	0	0
	Maximum tax deductible contributions	135,739,208 (est)	120,806,687
	Actual contributions	815,898 ¹	620,405 ²
	Expected benefit payments and expenses, net of participant contributions	87,615,846	85,110,453

¹ Includes \$856,974 expected to be paid directly for key retirees in 2020, offset by \$41,076 in Medicare Retiree Drug Subsidies.

² Includes \$940,432 paid directly for key retirees in 2019, offset by \$320,027 in Medicare Retiree Drug Subsidies.

Employer contributions

Employer contributions are the amounts paid by AEP to provide for postretirement benefits, net of participant contributions and Medicare Part D payments. Most participants receiving benefits are required to contribute toward the cost of the plan.

AEP's funding policy is to contribute an amount equal to the postretirement welfare cost plus retiree drug subsidy payments received (the sum of which can be no less than zero). AEP maximizes its contribution to the 401(h) account and contributes the remainder to the various VEBAs. AEP may deviate from this policy, as permitted by its terms, based on cash, tax or other considerations.

Postretirement welfare cost and funded position

The cost of the postretirement welfare plan is determined in accordance with generally accepted accounting principles in the U.S. ("U.S. GAAP"). The fiscal 2020 postretirement welfare benefit cost/(income) for the plan is \$(110,676,137). Under U.S. GAAP, the funded position (fair value of plan assets less the projected benefit obligation, or "APBO") of each postretirement welfare plan at the plan sponsor's fiscal year-end (measurement date) is required to be reported as a liability. The APBO is the actuarial present value of benefits attributed to service rendered prior to the measurement date, taking into consideration expected future pay increases for pay-related plans. The plan's overfunded (underfunded) APBO as of January 1, 2020 was \$580,112,741 based on the fair value of plan assets of \$1,747,344,491 and the APBO of \$1,167,231,750.

Fiscal year-end financial reporting information and disclosures are prepared before detailed participant data and full valuation results are available. Therefore, the postretirement benefit asset (liability) at December 31, 2019 was derived from a roll forward of the January 1, 2019 valuation results, adjusted for the year-end discount rate and asset values, as well as significant changes in plan provisions and participant population. The next fiscal year financial reporting information will be developed based on the results of the January 1, 2020 valuation, projected to the end of the year and similarly adjusted for the year-end discount rate and asset values, as well as significant changes in plan provisions and participant population.

Change in postretirement welfare cost

The postretirement welfare cost/(income) decreased from \$(82,976,383) in fiscal 2019 to \$(110,676,137) in fiscal 2020, as set forth below:

All monetary amounts shown in millions of U.S. Dollars

Postretirement Welfare Cost	
Prior year	(83.0)
Change due to:	
■ Expected based on prior valuation and contributions during prior year	(2.9)
■ Unexpected noninvestment experience	(0.0)
■ Unexpected investment experience	(37.7)
■ Plan Amendment	(1.7)
■ Assumption changes	14.6
Current year	(110.7)

Significant reasons for these changes include the following:

- Per capita health care cost assumption was updated and decreased the postretirement welfare cost. Note that these rates reflect the elimination of the Health Insurance Fee in 2021.

All monetary amounts shown in millions of U.S. Dollars

	2020	2019
Medical (Overall Average)		
Under age 65 ¹		
■ HSA Basic	9,503	9,427
■ HSA Plus	10,464	10,394
■ HRA	11,406	11,400
Age 65 and older (before Part D offsets)		
■ Medicare Select/COB ²	3,746	3,985
■ Medicare Standard/MOB ²	2,673	2,868
■ CSP	2,567	2,301
Medicare Part D offsets		
■ Medicare Advantage/MOB/COB (EGWP)	(1,037)	(915)
■ CSP (RDS)	(303)	(273)

See Appendix A for additional details on per capita claims costs assumptions including assumed claims costs adjusted for age-related morbidity adjustments.

¹ Pre-65 per capita claims costs shown above do not include the 5% adjustment for potential dependent children covered under the plan

² Medicare Advantage rates shown reflect the removal of HIF in 2020 despite it being eliminated after 2020 under legislation signed December 2019

- The discount rate decreased 100 basis points since the prior year which increased the postretirement welfare cost.
- Actual asset returns during 2019 were greater than the assumed rate of 6.25% which decreased the postretirement welfare cost.
- The expected return on assets assumption was decreased by 75 basis points to 5.50% which increased the postretirement welfare cost.
- The base mortality scale has been updated from RP-2014, factored to 2006, to Pri-2012 (using contingent survivor tables only after retiree death) and the mortality improvement scale has been updated from a modified version of MP-2018 adjusted to reflect 75% of the long-term improvement rates to a modified version of MP-2019 adjusted to reflect 75% of the long-term improvement rates. These two mortality assumption changes each decreased the postretirement welfare cost.
- The ultimate medical and prescription cost trend rate assumption was updated from reaching 5.00% in 2024 to 4.50% in 2026 which decreased the postretirement welfare cost.
- The termination, retirement, participation, persistency and salary increase (affects a small group of grandfathered active employees) assumptions were updated to reflect the experience study performed in 2019. Overall, these assumption changes combined increased postretirement welfare benefit cost.
- The plan was amended to increase dependent and surviving spouse contributions for most spouses which decreased the postretirement welfare benefit cost.

Basis for valuation

Appendix A summarizes the assumptions and methods used in the valuation. Appendix B summarizes our understanding of the principal provisions of the plan being valued.

Changes in Assumptions

- Discount rate was changed from 4.30% to 3.30%.
- The expected return on assets assumption was decreased by 75 basis points to 5.50%.
- Per capita claims costs were updated to reflect 2018 retiree claims experience and the elimination of the Health Insurance Fee in 2021.
- The medical and prescription drug trend rate assumption was changed to extend the 0.25% annual reductions two additional years before reaching a 4.50% ultimate rate in 2026.
- The mortality base table was updated to Pri-2012 (using contingent survivor tables only after retiree death).
- The mortality improvement projection was updated to the MP-2019 scale, adjusted to reflect 75% of the long-term improvement rates.
- The termination, retirement, participation, persistency and salary increase (affects a small group of grandfathered active employees) assumptions were updated based on the experience study performed in 2019.

Changes in Methods

None.

Changes in Benefits Valued

The valuation reflects the amendment to increase dependent and surviving spouse contributions for most spouses which decreased the postretirement welfare benefit cost. This amendment was first recognized at December 31, 2019 year-end disclosure and first included in expense for FY2020.

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Actuarial certification

This valuation has been conducted in accordance with generally accepted actuarial principles and practices. However, please note the information discussed below regarding this valuation

Reliances

In preparing the results presented in this report, we have relied upon information regarding plan provisions, participants, assets, and sponsor accounting policies and methods provided by AEP and other persons or organizations designated by AEP. See the Sources of Data and Other Information section of Appendix A for further details. We have relied on all the data and information provided as complete and accurate. We have reviewed this information for overall reasonableness and consistency, but have neither audited nor independently verified this information. Based on discussions with and concurrence by the plan sponsor, assumptions or estimates may have been made if data were not available. We are not aware of any errors or omissions in the data that would have a significant effect on the results of our calculations. The results presented in this report are directly dependent upon the accuracy and completeness of the underlying data and information. Any material inaccuracy in the data, assets, plan provisions or other information provided to us may have produced results that are not suitable for the purposes of this report and such inaccuracies, as corrected by AEP, may produce materially different results that could require that a revised report be issued.

Measurement of benefit obligations, plan assets and balance sheet adjustments

Census date/measurement date

The measurement date is January 1, 2020. The benefit obligations were measured as of January 1, 2020 and are based on participant data as of the census date, January 1, 2020.

Plan assets and balance sheet adjustments

Information about the fair value of plan assets and the general ledger account balances for the other postretirement benefit plan cost at December 31, 2019, which reflect the expected funded status of the plans before adjustment to reflect the funded status based on the year-end measurements, and differences between the expected Medicare Part D subsidies and amounts received during the year was reviewed for reasonableness and consistency, but no audit was performed.

Accumulated other comprehensive (income)/loss amounts shown in the report are shown prior to adjustment for tax effects. Any tax effects in AOCI should be determined by AEP in consultation with its tax advisors and independent accountants.

Effects of Health Care Legislation

This valuation reflects our understanding of the relevant provisions of the Patient Protection and Affordable Care Act (PPACA) and Health Care and Education Reconciliation Act (HCERA) as amended by subsequent legislation. The IRS has yet to issue final guidance with respect to many aspects of these laws. It is possible that future guidance may conflict with our understanding of these laws based on currently available guidance and could therefore affect the results shown in this report. The valuation does not anticipate the effects of any possible future changes to PPACA or HCERA.

Assumptions and methods under the Internal Revenue Code for contribution limit purposes

The actuarial assumptions and methods employed in the development of the contribution limits have been selected by the plan sponsor, with the concurrence of Willis Towers Watson. The Internal Revenue Code requires the use of reasonable assumptions (taking into account the experience of the plan and reasonable expectations) which, in combination, offer the actuary's best estimate of anticipated experience under the plan. We believe that the assumptions used in our valuation are reasonable and appropriate for the purposes for which they have been used.

Assumptions and methods under U.S. GAAP

As required by U.S. GAAP, the actuarial assumptions and methods employed in the development of the other postretirement benefit cost and other financial reporting have been selected by AEP. Willis Towers Watson has concurred with these assumptions and methods, except for the expected rate of return on plan assets selected as of January 1, 2020. Evaluation of the expected return assumption was outside the scope of Willis Towers Watson's assignment and would have required substantial additional work that we were not engaged to perform. U.S. GAAP requires that each significant assumption "individually represent the best estimate of a particular future event."

The results shown in this report have been developed based on actuarial assumptions that, to the extent evaluated by Willis Towers Watson, we consider to be reasonable. Other actuarial assumptions could also be considered to be reasonable. Thus, reasonable results differing from those presented in this report could have been developed by selecting different reasonable assumptions.

A summary of the assumptions, methods and sources of data and other information used is provided in Appendix A. Note that any subsequent changes in methods or assumptions for the January 1, 2020 measurement date will change the results shown in this report.

Nature of actuarial calculations

The results shown in this report are estimates based on data that may be imperfect and on assumptions about future events that cannot be predicted with any certainty. The effects of certain plan provisions may be approximated or determined to be insignificant and therefore not valued. Reasonable efforts were made in preparing this valuation to confirm that items that are significant in the context of the actuarial liabilities or costs are treated appropriately and are not excluded or included inappropriately. Any rounding (or lack thereof) used for displaying numbers in this report is not intended to imply a degree of precision, which is not a characteristic of actuarial calculations.

If overall future plan experience produces higher benefit payments or lower investment returns than assumed, the relative level of plan costs reported in this valuation will likely increase in future valuations (and vice versa). Future actuarial measurements may differ significantly from the current measurements presented in this report due to many factors, including: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for the measurements (such as the end of an amortization period), and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements. Retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

See Basis for valuation in Section 1 above for a discussion of any material events that have occurred after the valuation date that are not reflected in this valuation.

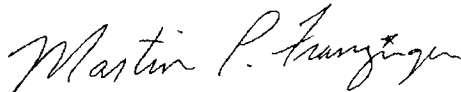
Limitations on use

This report is provided subject to the terms set out herein and in our Master Consulting Services Agreement dated July 29, 2004 and any accompanying or referenced terms and conditions.

The information contained in this report was prepared for the internal use of AEP and its independent accountants in connection with our actuarial valuation of the other postretirement benefit plan as described in Purposes of Valuation above. It is not intended for and may not be used for other purposes, and we accept no responsibility or liability in this regard. AEP may distribute this actuarial valuation report to the appropriate authorities who have the legal right to require AEP to provide them this report, in which case AEP will use best efforts to notify Willis Towers Watson in advance of this distribution. Further distribution to, or use by, other parties of all or part of this report is expressly prohibited without Willis Towers Watson's prior written consent. Willis Towers Watson accepts no responsibility for any consequences arising from any other party relying on this report or any advice relating to its contents.

Professional Qualifications

The undersigned are members of the Society of Actuaries and meet the "Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States" relating to other postretirement benefit plans. Our objectivity is not impaired by any relationship between the plan sponsor and our employer, Willis Towers Watson US LLC.



Martin P. Franzinger, ASA, MAAA
NA Health & Benefits Consulting Actuary
Pricing Specialist



Chad M. Greenwalt, FSA, EA
Director, Retirement
Valuation Actuary



Joseph A. Perko, FSA, EA, MAAA
Director, Retirement
Valuation Actuary

The Pricing Specialist is responsible for developing and/or determining the reasonableness of retiree welfare plan trend and participation assumptions as well as assumed per capita claims costs (including the aging/morbidity assumption, if applicable). The Valuation Actuary is responsible for other aspects of the valuation (e.g., developing and/or reviewing the reasonableness of other valuation assumptions and methods, ensuring that the valuation model reasonably reflects the substantive plan and actual plan operation, preparing demographic data, performing the valuation, implementing the correct accounting or funding calculations, etc.).

Willis Towers Watson US LLC

April 2020

[http://natct.internal.towerswatson.com/clients/604598/AEP2020Valuations/Documents/Non-UMWA Report 2020.docx](http://natct.internal.towerswatson.com/clients/604598/AEP2020Valuations/Documents/Non-UMWA%20Report%202020.docx)

Section 2: Actuarial exhibits

2.1 Balance sheet asset/(liability)

All monetary amounts shown in U.S. Dollars

Measurement Date	01/01/2020	01/01/2019
A Development of Balance Sheet Asset/(Liability)¹		
1 Accumulated postretirement benefit obligation (APBO)	1,167,231,750	1,126,652,189
2 Fair value of assets (FVA)	1,747,344,491	1,510,044,948
3 Net balance sheet asset/(liability)	580,112,741	383,392,759
B Current and Noncurrent Allocation		
1 Noncurrent assets	580,112,741	383,392,759
2 Current liabilities	0	0
3 Noncurrent liabilities	0	0
4 Net balance sheet asset/(liability)	580,112,741	383,392,759
C Accumulated Other Comprehensive (Income)/Loss		
1 Net transition obligation/(asset)	0	0
2 Net prior service cost/(credit)	(285,461,153)	(343,305,273)
3 Net loss/(gain)	239,597,249	410,564,569
4 Accumulated other comprehensive (income)/loss ²	(45,863,904)	67,259,296
D Assumptions and Dates³		
1 Discount rate	3 30%	4.30%
2 Rate of compensation/salary increase	Rates vary by age from 3.5% to 11.5%	Rates vary by age from 3.5% to 12.0%
3 Current health care cost trend rate	6.00%	6.25%
4 Ultimate health care cost trend rate	4.50%	5.00%
5 Year of ultimate trend rate	2026	2024
6 Census date	January 1, 2020	January 1, 2019

¹ Whether the amounts in this table that differ from those disclosed at year-end must be disclosed in subsequent interim financial statements should be determined

² Amount shown is pre-tax and should be adjusted by plan sponsor for tax effects

³ Rates are expressed on an annual basis where applicable

2.2 Summary and comparison of postretirement benefit cost and cash flows

All monetary amounts shown in U.S. Dollars

Fiscal Year Ending		12/31/2020	12/31/2019
A Total Postretirement Benefit Cost			
1	Employer service cost	9,425,699	8,879,155
2	Interest cost	37,395,768	47,017,232
3	Expected return on assets	(93,726,760)	(91,758,415)
4	Subtotal	(46,905,293)	(35,862,028)
5	Net prior service cost/(credit) amortization	(69,726,760)	(68,626,236)
6	Net loss/(gain) amortization	5,955,981	21,511,881
7	Transition obligation/(asset) amortization	0	0
8	Amortization subtotal	(63,770,844)	(47,114,355)
9	Net periodic postretirement benefit cost/(income)	(110,676,137)	(82,976,383)
B Assumptions¹			
1	Discount rate	3.30%	4.30%
2	Long-term rate of return on assets	5.50%	6.25%
3	Rate of compensation/salary increase	Rates vary by age from 3.5% to 11.5%	Rates vary by age from 3.5% to 12.0%
4	Current health care cost trend rate	6.00%	6.25%
5	Ultimate health care cost trend rate	4.50%	5.00%
6	Year ultimate trend rate is expected	2026	2024
C Census Date		January 1, 2020	January 1, 2019
D Assets at Beginning of Year			
1	Fair market value	1,747,344,491	1,510,044,948
E Cash Flow		Expected	Actual
1	Employer contributions	898,275 ²	940,432
2	Plan participants' contributions	39,848,084	35,558,734
3	Benefits paid from plan assets	127,463,930	110,060,479
4	Expected Medicare retiree drug subsidy on current year benefit payments	(41,071)	(320,027)

¹ These assumptions were used to calculate the Net Postretirement Benefit Cost/ (Income) as of the beginning of the year. Rates are expressed on an annual basis where applicable. For assumptions used for interim measurement periods, if any, refer to Appendix A.

² Expected net claims for key employees to be paid directly by AEP in 2020.

2.3 Detailed results for postretirement welfare cost and funded position

All monetary amounts shown in U S Dollars

Detailed results		01/01/2020	01/01/2019
A Service Cost			
1 Medical		6,921,858	6,812,988
2 Life insurance		2,503,841	2,066,167
3 Dental		0	0
4 Total		9,425,699	8,879,155
B Accumulated Postretirement Benefit Obligation [APBO]			
1 Medical:			
a Participants currently receiving benefits		521,799,315	549,649,364
b Fully eligible active participants		58,852,747	57,101,030
c Other participants		151,443,341	147,139,121
d Total		732,095,403	753,889,515
2 Life insurance:			
a Participants currently receiving benefits		338,838,582	292,634,491
b Fully eligible active participants		27,871,692	23,286,051
c Other participants		55,695,808	45,609,396
d Total		422,406,082	361,529,938
3 Dental			
a Participants currently receiving benefits		12,619,922	11,032,704
b Fully eligible active participants		110,343	200,032
c Other participants		0	0
d Total		12,730,265	11,232,736
4 All Benefits:			
a Participants currently receiving benefits		873,257,819	853,316,559
b Fully eligible active participants		86,834,782	80,587,113
c Other participants		207,139,149	192,748,517
d Total		1,167,231,750	1,126,652,189
C Assets			
1 Fair value [FV]		1,747,344,491	1,510,044,948
D Funded Position			
1 Overfunded (underfunded) APBO		580,112,741	383,392,759
2 APBO funded percentage		149 %	134 %
E Amounts in Accumulated Other Comprehensive Income			
1 Prior service cost (credit)		(285,461,153)	(343,305,273)
2 Net actuarial loss (gain)		239,597,249	410,564,569
3 Total		(45,863,904)	67,259,296
F Effect of Change in Health Care Cost Trend Rate			
1 One-percentage-point increase			
a Sum of service cost and interest cost		391,436	704,218
b APBO		21,960,079	23,933,611
2 One-percentage-point decrease			
a Sum of service cost and interest cost		(480,704)	(592,985)
b APBO		(22,963,932)	(21,889,758)

2.4 ASC 965 (plan reporting) information

All monetary amounts shown in U.S. Dollars

Summary of Present Value of Benefits		01/01/2020	01/01/2019
A Medical (ignoring Retiree Drug Subsidy)			
1	Current retirees	522,053,158	549,896,747
2	Active participants fully eligible for benefits	58,852,747	57,101,030
3	Other active participants	151,443,341	147,139,121
4	Total	732,349,246	754,136,898
B Life Insurance			
1	Current retirees	338,838,582	292,634,491
2	Active participants fully eligible for benefits	27,871,692	23,286,051
3	Other active participants	55,695,808	45,609,396
4	Total	422,406,082	361,529,938
C Dental			
1	Current retirees	12,619,922	11,032,704
2	Active participants fully eligible for benefits	110,343	200,032
3	Other active participants	0	0
4	Total	12,730,265	11,232,736
D Total (ignoring Retiree Drug Subsidy)			
1	Current retirees	873,511,662	853,563,942
2	Active participants fully eligible for benefits	86,834,782	80,587,113
3	Other active participants	207,139,149	192,748,517
4	Total	1,167,485,593	1,126,899,572

Actuarial assumptions and methods

The key actuarial assumptions used for plan reporting calculations are the same as those used to determine the postretirement welfare cost and are shown in the Actuarial Assumptions and Methods section, except that the Retiree Drug Subsidy (RDS) associated with Medicare Part D is not reflected. For the prior valuation, a discount rate of 4.30% was used. The same plan provisions shown in Appendix B were used to determine the present value of accumulated benefits.

Reconciliation of Present Value of Benefits		Plan Year 2019	Plan Year 2018
A Medical (ignoring Retiree Drug Subsidy)			
1	Benefit obligation, beginning of year	754,136,898	844,332,790
2	Service cost	6,812,988	7,950,981
3	Interest cost	31,318,409	29,438,598
4	Participant contributions	27,587,945	29,473,895
5	Net actuarial (gain)/loss - experience	(4,485,117)	20,779,750
6	Net actuarial (gain)/loss - assumptions	13,750,160	(70,226,639)
7	Plan amendments	(10,826,415)	0
8	Gross benefits paid	(85,945,622)	(107,612,477)
9	Benefit obligation, end of year	732,349,246	754,136,898
B Life Insurance			
1	Benefit obligation, beginning of year	361,529,938	394,362,599
2	Service cost	2,066,167	2,682,496
3	Interest cost	15,247,720	13,980,016
4	Participant contributions	939,095	1,130,820
5	Net actuarial (gain)/loss - experience	2,109,136	(1,134,058)
6	Net actuarial (gain)/loss - assumptions	56,396,227	(34,551,137)
7	Plan amendments	45,297	0
8	Gross benefits paid	(15,927,498)	(14,940,798)
9	Benefit obligation, end of year	422,406,082	361,529,938
C Dental			
1	Benefit obligation, beginning of year	11,232,736	12,869,841
2	Service cost	0	0
3	Interest cost	460,852	443,660
4	Participant contributions	7,031,694	5,908,260
5	Net actuarial (gain)/loss - experience	1,630,051	(126,179)
6	Net actuarial (gain)/loss - assumptions	661,551	(913,145)
7	Plan amendments	(99,260)	0
8	Gross benefits paid	(8,187,359)	(6,949,701)
9	Benefit obligation, end of year	12,730,265	11,232,736
D Total (ignoring Retiree Drug Subsidy)			
1	Benefit obligation, beginning of year	1,126,899,572	1,251,565,230
2	Service cost	8,879,155	10,633,477
3	Interest cost	47,026,981	43,862,274
4	Participant contributions	35,558,734	36,512,975
5	Net actuarial (gain)/loss - experience	(745,930)	19,519,513
6	Net actuarial (gain)/loss - assumptions	70,807,938	(105,690,921)
7	Plan amendments	(10,880,378)	0
8	Gross benefits paid	(110,060,479)	(129,502,976)
9	Benefit obligation, end of year	1,167,485,593	1,126,899,572

2.5 Basic results for employer contributions - VEBAs

All monetary amounts shown in U S Dollars

All Postretirement VEBAs		Estimated December 31, 2020	Actual December 31, 2019
A	Qualified Asset Account Limits [QAAL]¹	420,000,000	427,839,008
B	Assets		
1	Market value	1,321,000,000	1,291,737,757
2	Unrecognized investment losses (gains)	0	0
3	Actuarial value [AV]	1,321,000,000	1,291,737,757
C	Funded Position		
1	Unfunded account limits [QAAL – FV]	(901,000,000)	(863,898,749)
D	Employer Contributions		
1	Maximum deductible available ²	134,000,000	120,806,687
2	Qualified additions		
a	Prior years' carryover	0	0
b	Current year additions	0	0
c	Total deductions available [a + b]	0	0
3	Other non-deductible current year additions	0	0
4	Total additions [2.c + 3]	0	0
a	Life insurance VEBA	0	0
b	Union medical and dental VEBAs	0	0
c	Non-union medical and dental VEBAs	0	0

¹ Includes the present value of projected benefits for the union retiree medical VEBA

² Includes amounts not contributed to trusts with capacity at year-end

2.6 VEBA deduction limits

All monetary amounts shown in U.S. Dollars

Retiree Life Insurance		2019	2018
A Qualified Asset Account Limit (QAAL)			
1	December 31 actuarial accrued liability	231,485,487	213,155,460
2	Unrecognized liability	0	0
3	QAAL	231,485,487	213,155,460
B Assets			
1	Market value as of December 31	110,678,800	100,972,420
2	Unrecognized investment losses (gains)	0	0
3	Actuarial value [AV]	110,678,800	100,972,420
C Funded position			
1	Unfunded account limit [QAAL - AV]	120,806,687	112,183,040
2	Contributions received in trust, but not yet deducted		
	Through 2012	0	0
	2013	0	0
	2014	0	0
	2015	0	0
	2016	0	0
	2017	0	0
	2018	0	0
	2019	0	0
	Total	0	0
D Employer deductions for contributions to VEBAs			
1	Maximum deduction available ¹ [C 1 + Total of C 2]	120,806,687	112,183,040
2	Qualified additions		
a	Prior years' carryover	0	0
b	Current year additions	0	0
c	Total deductions available [a + b]	0	0
3	Other non-deductible current year additions	0	0
4	Total additions [2 c + 3]	0	0

¹ Includes amounts not contributed

All monetary amounts shown in U S Dollars

Union Medical and Dental		2019	2018
A Qualified Asset Account Limit (QAAL)			
1	December 31 present value of projected benefits	151,119,490	155,557,172
2	Unrecognized liability	0	0
3	QAAL	151,119,490	155,557,172
B Assets			
1	Market value as of December 31	535,465,709	452,818,363
2	Unrecognized investment losses (gains)	0	0
3	Actuarial value [AV]	535,465,709	452,818,363
C Funded position			
1	Unfunded account limit [QAAL - AV]	(384,346,219)	(297,261,191)
2	Contributions received in trust, but not yet deducted		
	Through 2012	0	0
	2013	0	0
	2014	0	0
	2015	0	0
	2016	0	0
	2017	0	0
	2018	0	1,569,839
	2019	0	0
	Total	0	1,569,839
D Employer deductions for contributions to VEBAs			
1	Maximum deduction available ¹ [greater of C 1+C 2 and 0]	0	0
2	Qualified additions		
a	Prior years' carryover	0	0
b	Current year additions	0	1,569,839
c	Total deductions available [a + b]	0	1,569,839
3	Other non-deductible current year additions	0	0
4	Total additions [2 c + 3]	0	1,569,839

¹ Includes amounts not contributed.

All monetary amounts shown in U.S. Dollars

Non-Union Retiree Medical and Dental		2019	2018
A Qualified Asset Account Limit (QAAL)			
1	December 31 actuarial accrued liability	45,234,031	48,944,990
2	Unrecognized liability	0	0
3	QAAL	45,234,031	48,944,990
B Assets			
1	Market value as of December 31	645,593,248	544,348,347
2	Unrecognized investment losses (gains)	0	0
3	Actuarial value [AV]	645,593,248	544,348,347
C Funded position			
1	Unfunded account limit [QAAL - AV]	(600,359,217)	(495,403,357)
2	Contributions received in trust, but not yet deducted		
	Through 2012	285,901,694	285,901,694
	2013	0	0
	2014	0	0
	2015	0	0
	2016	0	0
	2017	0	0
	2018	10,082,000	10,082,000
	2019	0	0
	Total	295,983,694	295,983,694
D Employer deductions for contributions to VEBAs			
1	Maximum deduction available ¹ [greater of C 1+C 2 and 0]	0	0
2	Qualified additions		
a	Prior years' carryover	0	0
b	Current year additions	0	0
c	Total deductions available [a + b]	0	0
3	Other non-deductible current year additions	0	10,082,000
4	Total additions [2 c + 3]	0	10,082,000

¹ Includes amounts not contributed.

2.7 Cumulative nondeductible contributions

All monetary amounts shown in U S Dollars

Non-Union Retiree Medical and Dental VEBAs			
	Contributions Made by December 31, 2019, but Not Deducted as of December 31, 2018	Deductible in 2019	Remaining Nondeductible Contributions as of December 31, 2019
Through 2008	\$0	\$0	\$0
2009	105,440,603	0	105,440,603
2010	73,467,453	0	73,467,453
2011	38,701,148	0	38,701,148
2012	68,292,490	0	68,292,490
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	0	0	0
2018	10,082,000	0	10,082,000
2019	0	0	0
Total	\$295,983,694	\$0	\$295,983,694

Retiree Life Insurance VEBAs			
	Contributions Made by December 31, 2019, but Not Deducted as of December 31, 2018	Deductible in 2019	Remaining Nondeductible Contributions as of December 31, 2019
Through 2008	\$0	\$0	\$0
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	0	0	0
2018	0	0	0
2019	0	0	0
Total	\$0	\$0	\$0

2.8 Development of maximum deductible contribution – 401(h)

All monetary amounts shown in U.S. Dollars

Plan Year Beginning		January 1, 2020
A Development of Maximum Deductible Contribution		
1	Present value of projected benefits	469,192,554
2	Fair value of assets	455,606,734
3	Unfunded surplus [1 - 2]	13,585,820
4	Average present value of future service	8
5	Preliminary maximum deductible contribution	
a	10% of unfunded surplus [10% x A 3]	1,358,582
b	Aggregate normal cost [A 3 / A 4]	1,610,777
c	Greater of A.5.a, A.5.b and 0	1,610,777
6	Preliminary maximum 2019 contribution [1.05 x A 5 c]	1,691,316
7	Subordination test (development shown below)	144,098,542
8	Maximum deductible contribution ignoring expenses [lesser of A.6 and A 7]	1,691,316
9	Total trust expenses paid from 401(h) account during 2019	546,913
10	Maximum deductible contribution including expenses [A.8 + A 9]	2,238,229

B Subordination Test

Year-by-year minimum of actual pension plan contribution and pension plan normal cost with interest

Year	West Plan	East Plan	Combined Plan
1992	9,766,169	N/A	N/A
1993	22,392,743	N/A	N/A
1994	21,208,326	N/A	N/A
1995	21,683,436	N/A	N/A
1996	20,271,648	N/A	N/A
1997 - 2002	0	N/A	N/A
2003	19,197,145	39,165,054 ¹	N/A
2004	18,614,338	56,614,811	N/A
2005	16,222,550	55,872,817	N/A
2006	0	0	N/A
2007	0	0	N/A
2008	0	0	0
2009	N/A	N/A	100,540,448
2010	N/A	N/A	125,586,018
2011	N/A	N/A	62,751,522
2012	N/A	N/A	0
2013	N/A	N/A	65,249,050
2014	N/A	N/A	0
2015	N/A	N/A	81,674,776
2016	N/A	N/A	84,696,307
2017	N/A	N/A	93,590,761
2018	N/A	N/A	0
2019	N/A	N/A	95,529,000
Cumulative pension contributions not for past service	149,356,355	151,652,682	1,010,626,920
	x 1/3	x 1/3	x 1/3
	49,785,452	50,550,894	336,875,640
Cumulative 401(h) contributions before plan year 2020	49,785,452	50,550,894	192,777,098
Subordination limit	0	0	144,098,542

¹ Includes only portion of normal cost and contributions after 401(h) account adoption for indicated year

2.9 Expected benefit disbursements, administrative expenses, and participant contributions

All monetary amounts shown in U.S. Dollars

	January 1, 2020	January 1, 2019
A Medical and Dental		
1 Gross disbursements	106,746,989	101,184,040
2 Participant contributions	(38,706,663)	(34,219,174)
3 Net disbursements	68,040,326	66,964,866
B Life Insurance		
1 Gross disbursements	20,758,017	19,348,158
2 Participant contributions	(1,141,421)	(1,160,820)
3 Net disbursements	19,616,596	18,187,338
C Gross without RDS		
1 Gross disbursements	127,505,006	120,532,198
2 Participant contributions	(39,848,084)	(35,379,994)
3 Net disbursements	87,656,922	85,152,204
D RDS¹		
1 Gross disbursements	(41,076)	(41,751)
2 Participant contributions	0	0
3 Net disbursements	(41,076)	(41,751)
E Net with RDS		
1 Gross disbursements	127,463,930	120,490,447
2 Participant contributions	(39,848,084)	(35,379,994)
3 Net disbursements	87,615,846	85,110,453

¹ 2019-2020 RDS payments expected to be received in 2021-2022

Section 3: Data exhibits

3.1 Plan participant data

All monetary amounts shown in U.S. Dollars

Census Date	01/01/2020	01/01/2019
-------------	------------	------------

A Participating Employees

1 Number		
a Fully eligible	1,891	1,979
b Other	9,469	10,460
c Total participating employees	11,360	12,439
2 Average age (years)	51.06	50.70
3 Average credited service (years)	21.95	21.51
4 Average future working life (years)		
a to full retirement age	10.890	12.070
b to full eligibility age	10.246	10.976

B Retirees and Surviving Spouses

1 Retirees and Surviving Spouses		
a Number under 65	3,060	3,143
b Number 65 and older	14,638	14,377
c Total ¹	17,698	17,520
d Average age (years)	73.85	73.79
e. Age Distribution at January 1, 2020		

Age	Number
Under 55	98
55-59	613
60-64	2,349
65-69	3,468
70-74	3,935
75-79	2,807
80-84	1,971
85 and over	2,457

C Dependents

1 Number	8,302	8,195
2 Average Age	69.55	69.46
3 Age Distribution at January 1, 2020		

Age	Number
Under 55	221
55-59	669
60-64	1,699
65-69	1,862
70-74	1,843
75-79	1,073
80-84	594
85 and over	341

¹ Includes 325 disabled participants in 2020 and 327 disabled participants in 2019. These participants were not included in the calculation of the other data statistics in this section.

3.2 Age and service distribution of participating employees

All monetary amounts shown in U.S. Dollars

All monetary amounts shown in U.S. Dollars									
Attained Age	Attained Years of Credited Service and Number								Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	
Under 25	0	1	0	0	0	0	0	0	1
25-29	0	130	8	0	0	0	0	0	138
30-34	0	381	305	8	0	0	0	0	694
35-39	0	310	661	193	7	0	0	0	1,171
40-44	0	232	598	398	124	6	0	0	1,358
45-49	0	185	453	348	279	114	4	0	1,383
50-54	0	125	357	259	242	401	303	16	1,703
55-59	0	85	253	210	246	303	717	728	2,542
60-64	0	53	138	122	109	171	288	1,014	1,895
65-69	0	23	37	32	20	34	39	229	414
70 & over	0	7	10	8	2	4	7	23	61
Total	0	1,532	2,820	1,578	1,029	1,033	1,358	2,010	11,360
Average. Age	51.06	Number of Participants			Fully eligible	1,891	Males	9,248	
Service	21.95				Other	9,469	Females	2,112	
Census data as of January 1, 2020									

Appendix A: Statement of actuarial assumptions, methods and data sources

Actuarial Assumptions and Methods — Postretirement Welfare Cost and Funding/Tax Deductions Based on Plan Year beginning January 1, 2020

Economic Assumptions

	Postretirement Welfare Cost	Plan Reporting	Employer Contributions																								
Discount rate ¹	3.30%	3.30%	N/A																								
Rates of return on assets, pre-tax: ¹																											
■ 401(h) accounts	N/A	N/A	5.00%																								
■ Life insurance	N/A	N/A	7.50%																								
■ Union medical/dental	N/A	N/A	5.50%																								
■ Non-union medical/dental	N/A	N/A	5.25%																								
■ Aggregate	5.50%	N/A	N/A																								
Annual rates of compensation increase																											
■ Representative rates	<table><tr><th>Age</th><th>Rate</th></tr><tr><td>< 25</td><td>11.50%</td></tr><tr><td>25 – 29</td><td>8.50%</td></tr><tr><td>30 – 34</td><td>7.00%</td></tr><tr><td>35 – 39</td><td>6.00%</td></tr><tr><td>40 – 44</td><td>5.00%</td></tr><tr><td>45 – 49</td><td>4.50%</td></tr><tr><td>50 – 54</td><td>4.00%</td></tr><tr><td>55 – 59</td><td>3.75%</td></tr><tr><td>60 – 64</td><td>3.50%</td></tr><tr><td>65 – 69</td><td>3.25%</td></tr><tr><td>70+</td><td>3.00%</td></tr></table>	Age	Rate	< 25	11.50%	25 – 29	8.50%	30 – 34	7.00%	35 – 39	6.00%	40 – 44	5.00%	45 – 49	4.50%	50 – 54	4.00%	55 – 59	3.75%	60 – 64	3.50%	65 – 69	3.25%	70+	3.00%		
Age	Rate																										
< 25	11.50%																										
25 – 29	8.50%																										
30 – 34	7.00%																										
35 – 39	6.00%																										
40 – 44	5.00%																										
45 – 49	4.50%																										
50 – 54	4.00%																										
55 – 59	3.75%																										
60 – 64	3.50%																										
65 – 69	3.25%																										
70+	3.00%																										
■ Weighted average		4.85%																									
■ Medical cost trend rate ²	2020	6.00%																									
	2021	5.75%																									
	2022	5.50%																									
	2023	5.25%																									
	2024	5.00%																									
	2025	4.75%																									
	2026+	4.50%																									
Dental cost trend rate ²	2020+	3.00%																									
Medicare covered charges trend rate	Same as medical cost trend																										

Retiree contribution trend rate Same as medical cost trend. For capped retirees, future retiree contributions are developed based on expected gross costs compared to the applicable cap.

¹ Only discount rate and asset return assumptions vary between the reporting standards. All other assumptions are consistent throughout.

² 0% trend assumed for non-union VEBA account limit.

Participation Assumptions

Inclusion Date	The valuation date coincident with or next following the date on which the employee is hired.	
New or rehired employees	It was assumed there will be no new or rehired employees.	
	<i>Current Retirees</i>	<i>Future Retirees</i>
Participation	Based on valuation census data.	80% in 2020-2022 with the rate decreasing by 2% annually to an ultimate rate of 60% in 2032
Persistency	Capped retirees will drop coverage at a rate of 0.85% annually for 2020-2021, 2% for 2022, 3% for 2023, 4% for 2024 and beyond, Non-capped retirees will drop coverage at a rate of 0.85% annually,	Same as current retirees
Percentage of retiree with spousal coverage	Based on valuation census data.	72.6% for males, 52.6% for females.
Spouse age	Based on valuation census data.	Wife three years younger than husband.

Demographic Assumptions

Mortality Base mortality rates are derived from the Pri-2012 headcount weighted mortality table without collar adjustments.

 Mortality improvements are projected forward on a generational basis using an adjusted version of Scale MP-2019. The adjustment reflects 75% of the long-term improvement rates.

Disabled mortality (through age 65) Rates vary by age and sex.

 Representative rates:

Age	Males	Females
30	1.05%	0.54%
40	1.52	1.00
50	2.23	1.51
60	2.62	1.96

Disability Rates apply to employees not eligible to retire and vary by age and sex.

Representative rates:

Percentage becoming disabled during the year		
Age	Males	Females
20	0.060%	0.090%
30	0.060	0.090
40	0.074	0.110
50	0.178	0.270
60	0.690	1.035

Termination
(not due to disability
or retirement) Rates apply to employees not eligible to retire and vary by age
Representative rates:

Percentage leaving during the year	
Attained vested service	Rate
< 3	7.00%
3 – 4	6.00%
5 – 9	5.00%
10 – 14	4.00%
15 – 19	2.50%
20 +	1.50%

Retirement Rates vary by age.

Representative rates:

Percentage retiring during the year	
Age	Rate
55 – 58	4.00%
59	6.00%
60	7.50%
61	9.00%
62 – 64	16.00%
65 – 67	25.00%
68 – 69	20.00%
70+	100.00%

2020 Per Capita Claims Costs

Medical

■ Prior to age 65¹

Age	HSA Basic	HSA Plus	HRA
< 29	3,419	3,765	4,104
30 – 34	4,183	4,606	5,021
35 – 39	4,423	4,871	5,310
40 – 44	4,838	5,327	5,807
45 – 49	5,583	6,147	6,701
50 – 54	6,855	7,548	8,228
55 – 59	8,231	9,063	9,879
60 – 64	10,185	11,215	12,225
Average	9,503	10,464	11,406

■ Age 65 and after²

Age	Medicare Select	Medicare Standard	CSP
65 – 69	3,405	2,516	2,179
70 – 74	3,750	2,746	2,413
75 – 79	3,970	2,858	2,596
80 – 84	4,013	2,850	2,675
85 – 89	3,863	2,688	2,670
90 – 94	3,451	2,349	2,501
≥ 95	2,937	1,927	2,341
Average	3,746	2,673	2,567

■ Medicare Part D - RDS

Age	Medicare Advantage	CSP
65 – 69	N/A	(310)
70 – 74	N/A	(337)
75 – 79	N/A	(348)
80 – 84	N/A	(345)
85 – 89	N/A	(322)
90 – 94	N/A	(278)
≥ 95	N/A	(223)
Average	N/A	(303)

■ Medicare Part D - Employer Group Waiver Plan (EGWP) for Medicare Advantage plans

Age	CMS Direct Payments & Catastrophic Reinsurance	Manufacturer's Coverage Gap Discount
65 – 69	(427)	(555)
70 – 74	(464)	(603)
75 – 79	(479)	(622)
80 – 84	(474)	(616)
85 – 89	(442)	(575)
90 – 94	(382)	(497)
≥ 95	(307)	(399)
Average	(451)	(586)

Dental

416

¹ Pre-65 per capita claims costs do not include the 5% adjustment for potential dependent children covered under the plan

² Medicare Select and Medicare Standard claims costs shown above reflect the removal of Health Insurance Fee (HIF) which was eliminated through legislation signed December 2019. These rates were used to project future rates with the trend assumption. The obligations and projected cash flow also incorporated the HIF being added back for 2020 only.

Administrative expenses Included in claims costs shown above.

Additional Assumptions

Excise tax Retiree excise tax was eliminated due to legislation signed December 2019.

Timing of benefit payments Benefit payments are assumed to be made uniformly throughout the year and on average at mid-year.

Methods

Census date January 1, 2020

Measurement date January 1, 2020

Service cost and APBO Costs are determined using the Projected Unit Credit Cost Method. The annual service cost is equal to the present value of the portion of the projected benefit attributable to service during the upcoming year, and the Accumulated Postretirement Benefit Obligation (APBO) is equal to the present value of the portion of the projected benefit attributable to service before the valuation date. Service from hire date through the expected full eligibility date is counted in allocating costs.

Market-related value of assets The fair value of assets on the measurement date.

Amortization of unamortized amounts:

Prior service cost (credit) Increase in APBO resulting from a plan amendment is amortized on a straight-line basis over the average expected remaining service of active participants expected to benefit under the plan. Amortization of net prior service cost/(credit) resulting from a plan change is included as a component of Net Periodic Postretirement Benefit Cost/(Income) in the year first recognized and every year thereafter until such time as it is fully amortized. The annual amortization payment is determined in the first year as the increase in APBO due to the plan change divided by the average remaining service period to full eligibility for participating employees expected to receive benefits under the Plan. Reductions in APBO first reduce any unrecognized prior service cost; any remaining amount is amortized on a straight-line basis as described above.

Net loss (gain) Amortization of the net gain or loss resulting from experience different from that assumed and from changes in assumptions (excluding asset gains and losses not yet reflected in market-related value) is included as a component of Net Periodic Postretirement Benefit Cost/(Income) for a year.

Net loss (gain) in excess of 10% of the greater of APBO or the market-related value of assets is amortized on a straight-line basis over the average expected remaining service of active participants expected to benefit under the plan.

ASC 965 (formerly SOP 92-6)

- Present value of benefits

Present value of benefits is equal to the present value of the portion of the projected benefit attributable to service before the valuation date. Service from hire date through the expected full eligibility date is counted in allocating costs.
- Funding policy

AEP's funding policy is to contribute an amount equal to the postretirement welfare cost plus retiree drug subsidy payments received (the sum of which can be no less than zero). AEP maximizes its contribution to the 401(h) account and contributes the remainder to the VEBAs.
- Benefits Not Valued

All benefits described in the Plan Provisions section of this report were valued. Life insurance benefits in excess of \$50,000 and health care benefits for key employees were not included in determining the maximum deductible contribution. Willis Towers Watson has reviewed the plan provisions with AEP and based on that review is not aware of any significant benefits required to be valued that were not included.
- Change in Assumptions and Methods Since Prior Valuation
 - Per capita claims costs were updated to reflect 2018 retiree claims experience and the elimination of the Health Insurance Fee in 2021.
 - The medical and prescription drug trend rate assumption was changed to extend the 0.25% annual reductions two additional years before reaching a 4.50% ultimate rate in 2026.
 - Discount rate was changed from 4.30% to 3.30%.
 - The expected return on assets assumption was decreased by 75 basis points to 5.50%
 - The mortality base table was updated to Pri-2012.
 - The ultimate medical cost trend rate assumption was updated from reaching 5.00% in 2024 to 4.50% in 2026.
 - The mortality improvement projection was updated to the MP-2019 scale, adjusted to reflect 75% of the long-term improvement rates.
 - The termination, retirement, participation, persistency and salary increase assumptions were updated based on the experience study performed in 2019.

Sources of Data and Other Information

American Electric Power (AEP), through Business Solver, its third party administrator, furnished active and inactive participant data as of January 1, 2020. AEP also provided the accrued postretirement benefit costs and assets information as of December 31, 2019. Health plan vendors furnished the claims cost data. AEP supplied 2018 prescription drug rebates and ESI provided estimated 2020 EGWP payments. Data were reviewed for reasonableness and consistency, but no audit was performed. Based on discussions with the plan sponsor, assumptions or estimates were made when data were not available, and the data were adjusted to reflect any significant events that occurred between the date the data were collected and the measurement date. We are not aware of any errors or omissions in the data that would have a significant effect on the results of our calculations

Assumptions Rationale - Significant Economic Assumptions – Funding and Accounting

Discount rate	As required by U.S. GAAP, the discount rate was chosen by the plan sponsor based on market information on the measurement date
Interest rate (funding)	The interest rate is the expected rate of return on plan assets, and represents an estimate of future experience for trust asset returns, reflecting the plan's current asset allocation, and current and expected future market conditions.
Expected long-term return on plan assets	We understand that the expected return on assets assumption reflects the plan sponsor's estimate of future experience for trust asset returns, reflecting the plan's current asset allocation and any expected changes during the current plan year, current market conditions and the plan sponsor's expectations for future market conditions
Rates of increase in:	
<ul style="list-style-type: none"> ■ Inflation 	Assumptions were selected by the plan sponsor and represent a best estimate of future experience, based on a combination of market conditions at the measurement date and future expectations consistent with other economic assumptions used
<ul style="list-style-type: none"> ■ Plan administrative expenses 	Administrative expenses are included in per capita claims costs and thus the medical plan trend rate is applied to these expenses
<ul style="list-style-type: none"> ■ Claims cost trend rates 	<p>Assumed increases were chosen by the plan sponsor and, as required by U.S. GAAP, they represent an estimate of future experience, informed by an analysis of recent plan experience, leading to select and ultimate assumed trend rates and reflecting the expected near-term effect of recently enacted plan changes. In setting near term trend rates, other pertinent statistics were considered, including surveys on general medical cost increases. In setting the ultimate trend rate, considerations included assumed GDP growth consistent with the assumed future economic conditions inherent in other economic assumptions chosen by the client at the measurement date.</p> <p>After examining historical variability in trend rates, we believe that the selected assumptions do not significantly conflict with what would be reasonable based on a combination of market conditions at the measurement date and future expectations consistent with other economic assumptions used, other than the discount rate.</p> <p>For the medical VEBA funding limit of the non-bargained group, no future increases in medical costs have been assumed, in accordance with U.S. tax law.</p>
Participant contribution trend rates	In accordance with the substantive plan communicated to participants, participant contributions for non-capped participants are intended to remain a fixed percentage of total plan costs, and thus the trend rates, and the description of the derivation of the trend rates, are the same as for claims costs as shown above.

Basis for Per Capita Claims Cost Assumptions

- Pre-65 retiree medical rates

Anthem and ESI supplied data on retiree medical and prescription drug claims incurred in 2018 and paid through March 2019. AEP reported prescription drug rebates they received for 2018. Claim experience rates were calculated for medical plans by normalizing claims experience for benefit differences and combining, then dividing combined incurred claims, net of prescription rebates by covered lives and trending forward two years to 2020. Adjustments for minor plan design and network efficiency changes were also made. Finally, administrative expense rates were added to claims cost rates. Claims cost models were developed by age-grading these claims rates over standard Willis Towers Watson morbidity curves for both medical and prescription drugs to develop the quinquennial claims cost models.

- Post-65 retiree medical rates

2020 monthly claim rates were calculated separately for the Medicare Advantage options and CSP Medicare-eligible plans by dividing 2018 incurred claims (Rx only, except for CSP) paid through March 2019 by covered lives and trending forward two years to 2020. Prescription drug claim rates were then multiplied by pricing change factors representing the effect of any pricing and other program changes for 2019 and 2020. Next, 2020 premium rates for new Medicare Advantage plans (without the HIF) were added. Finally, administrative expense rates were added to claims cost rates. The HIF was excluded to provide a basis for projecting post-2020 claims costs using the trend assumption. (Aggregate amounts attributable to the temporary HIF for 2020 were manually added to the valuation results.) Claims cost models were developed separately for medical and prescription drug by age-grading these rates over standard Willis Towers Watson morbidity curves for medical and prescription drugs to develop quinquennial age-banded claims cost models.

- Dental rates

Aetna supplied data on dental claims incurred in 2018 and paid through March 2019. Combined claims experience for retirees was analyzed to derive the 2018 dental claim rates. The single coverage rate was trended to 2020 and administrative costs were added to derive the per capita claims cost assumption.

Medicare Part D offsets

- RDS

We calibrated our modelling tool to reflect the 2020 cost of the current prescription drug plans for AEP's CSP retirees. The tool employs a continuance table of annual retiree drug utilization levels, developed from analyzing the experience of many large companies, reflecting 1.8 million Medicare-eligible members' experience from 2016.

After the plan-specific benefit provisions have been calibrated to current costs, the Modeler trends costs forward to 2020 at 7.00% per year. Actuarial equivalence was determined using the following two-prong approach outlined in the regulations for Medicare Part D:

- *Gross Value Test* – The Modeler calculates the value of standard Medicare Part D coverage and compares it to AEP's plan costs. AEP's plans passed this test by being richer than the projected value of standard Medicare part D coverage for these groups.
- *Net Value Test* – The net value prong of the test compares the value of Standard Part D coverage in 2020 minus the greater of \$392.88 per year (the national average Part D premium) and 25.5% of the gross

value of Part D to the projected 2020 value of AEP coverage minus the average projected 2020 retiree contribution rate. For this purpose, retiree contributions were assumed to apply pro rata between the value of medical benefits and prescription drug benefits.

The tool calculates the average expected value of the employer subsidy in 2020, using the continuance table calibrated to AEP's CSP plan costs. This produced a 2020 per person employer subsidy of \$303 for CSP, which was then converted to rates that varied by participant age band using Willis Towers Watson's prescription drug morbidity factors.

■ EGWP

Estimated plan cost offsets associated with the EGWP arrangement were provided by Express Scripts for direct payments, coverage gap discounts and reinsurance payments. These projections reflected legislative changes that closed the coverage gap for brand drugs in 2020, including the increase in coverage gap discount percentage to 70%. These amounts were converted to rates varying by quinquennial age band using Willis Towers Watson's standard prescription drug morbidity factors.

Assumptions Rationale - Significant Demographic Assumptions

Healthy Mortality	Assumptions were selected by the plan sponsor and, as required by U.S. GAAP, represent a best estimate of future experience.
Disabled Mortality	Assumptions were selected by the plan sponsor and, as required by U.S. GAAP, represent a best estimate of future experience.
Termination	Termination rates are based on a recent demographic study and plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by termination patterns different than assumed.
Disability	Disability rates are based on plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by disability patterns different than assumed.
Retirement	Retirement rates are based on a recent demographic study and plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by retirement patterns different than assumed.
Persistency	Persistency rates are based on a recent demographic study and plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by persistency patterns different than assumed.
Participation	
■ Participants/Spouses	The assumed coverage rates for participants and spouses reflect historical experience as well as anticipated future reductions in rates due to expected rates of increase in participant contributions and availability of coverage through public exchanges.
■ Covered dependents	The assumed dependent coverage is based on the dependent coverage observed among recent retirees and general population statistics on the marital status of individuals of retirement age.

- Covered Spouse age The assumed age difference for spouses is based on the age difference observed among recent retirees and general population statistics of the age difference for married individuals of retirement age.

Source of Prescribed Methods

Funding methods The methods used for determining maximum deductible contributions to the 401(h) account and VEBA are chosen from acceptable methods prescribed by law.

Appendix B: Summary of principal other postretirement benefit plan provisions

Health Care Benefits

Eligibility	Participants are eligible upon retirement after age 55 with ten years of service or upon attaining age 55 with ten years of service after becoming permanently disabled. If involuntary termination, then eligible after age 50 with ten years of service. Employees hired on or after January 1, 2014 are not eligible to participate in the plan.
Surviving spouse	After the death of a retiree or active employee eligible to retire, surviving spouses are eligible until death or remarriage. Surviving children are also eligible, subject to the limiting age provision outlined above.
Dependent	Eligible dependents are spouse, unmarried children under age 19 (age 25 if a full-time student) and unmarried disabled children of any age.

Benefits – Post-65

The AEP Post-65 Medical Plan provides broad medical coverage through two Medicare Advantage plans with \$2,000 annual out-of-pocket maximums. Key differences between the two options offered to retirees are:

	Medicare Select	Medicare Standard
Deductible	\$0	\$200
Coinsurance	5%	20%
In-patient copay	\$250 per stay	\$200 per day (1-5)

Prescription drug benefits are provided under a separate design with the following copayments:

	Generic	Brand Name Formulary	Brand Name Nonformulary
30-day retail	\$10 copay	20% \$20 minimum \$100 maximum	35% \$35 minimum \$200 maximum
90-day retail	\$20 copay	20% \$50 minimum \$200 maximum	35% \$90 minimum \$300 maximum

Prescription drug benefits are also subject to a \$50 deductible and a \$1,000 out-of-pocket maximum per person.

Deductibles and out-of-pocket maximums are assumed to increase over time at approximately the same rate as benefit costs.

Benefits – Pre-65

Pre-65 retirees can elect coverage under the following plan options:

	HRA	HSA Plus	HSA Basic
Embedded Individual Amounts	None	Out-of-Pocket Maximum only	Deductible & Out-of-Pocket Maximum
Deductible			
■ Individual	\$1,500	\$2,000	\$2,800
■ Two Person	\$2,250	\$3,000	\$5,400
■ Family	\$3,000	\$4,000	\$8,100
AEP Account Seed			
■ Single	\$1,000	\$500	\$0
■ Two Person	\$1,500	\$750	\$0
■ Family	\$2,000	\$1,000	\$0
Coinsurance	85%	85%	90%
Out-of-Pocket Maximum			
■ Individual	\$4,000	\$4,000	\$4,000
■ Two Person	\$6,000	\$6,000	\$8,000
■ Family	\$8,000	\$8,000	\$12,000

Deductibles, account seeds and out-of-pocket maximums are assumed to increase over time at approximately the same rate as benefit costs.

Postretirement contributions Participant contributions are determined as a percentage of plan costs and vary by points (age at retirement plus service) as follows:

<i>Points</i>	<i>Retiree Cost</i>
65-69	46%
70-74	42
75-79	36
80-84	32
85-89	26
90-94	22
95+	20
Grandfathered	20

Spousal coverage requires contribution rates 2% higher than the retiree rates shown in the table above.

For participants retiring on or after January 1, 2013, AEP's subsidy is capped at \$11,500 and \$3,800 times employer cost sharing percentage for pre-65 and post-65 participants, respectively.

For East participants who retired prior to January 1, 1989, and West participants who retired prior to January 1, 1993, no contributions are required.

For East participants who retired on or after January 1, 1989, and West participants who retired on or after January 1, 1993, the 20% "Grandfathered" contributions are in effect if they retired by December 31, 2000, or attained age 50 and had ten or more years of service with the company on that date. The percentages described above are applied to plan costs that differ from the per capita claims costs assumed in the valuation as follows:

The Medicare status of dependents is not used to determine whether “pre-65” or “post-65” rates apply. The pre-65 plan rates used to calculate participant contributions are a blend of pre-65 retiree costs and active employee costs for those participants retired prior to January 1, 2013, only.

For purposes of determining retiree contribution rates, AEP excludes the value of the government’s monthly direct payment amount and its catastrophic reinsurance payments from offsetting the plan cost to which the contribution percentages are applied.

Disabled employee contributions

Disabled employees are offered coverage for the same rates as active employees while an employee remains disabled and is receiving LTD benefits.

If an employee retires while disabled and became disabled before January 1, 2001, a waiver of premium provision continues for life as long as the retirement commenced on or before September 1, 2013. If an employee retires while disabled and became disabled after January 1, 2001, the employee will be subject to the same contribution schedule as normal retirees, based on age and service points earned prior to LTD commencement.

Those participants retiring after January 1, 2013, pay a percentage of true pre-65 retiree costs.

Life Insurance Benefits

Grandfathered participants

Participants over age 50 with ten years of service as of December 31, 2000.

Grandfathered benefits

Grandfathered participants have the option of keeping current coverage. Active employee coverage for grandfathered East participants is one times final base pay at no cost with the option to buy up to two times base pay. The entire amount of coverage (basic plus supplemental) in force prior to retirement can be carried into retirement subject to reduction beginning at age 66. Current coverage for grandfathered West participants is one and one-half times final base pay prior to age 60, one times final base pay from age 60 to 64 and one-half times final base pay after age 65.

**Life Insurance Benefit Reduction Table
for Grandfathered East Participants**

<i>Years of Coverage</i>	<i>Age 66</i>	<i>Age 67</i>	<i>Age 68</i>	<i>Age 69</i>	<i>Age 70 or Over</i>
10 – 11	65%	55%	45%	35%	25%
11 – 12	70	60	50	40	30
12 – 13	75	65	55	45	35
13 – 14	80	70	60	50	40
14 – 15	85	75	65	55	45
15 or more	90	80	70	60	50

Grandfathered contributions

Grandfathered East retirees must contribute \$0.60/\$1,000 of coverage (basic + supplemental) per month. West retirees are not required to contribute to the cost of coverage.

Dental Benefits

Eligibility	Participants, including retirees and surviving dependents, are eligible upon retirement after age 55 with ten years of service. There is a one-time election and if coverage terminates there is no opportunity to reenroll.
Benefits	<p>The AEP Dental Plan provides dental coverage with a deductible of \$50 single/\$150 family, 100% coinsurance for preventive care, 80% coinsurance for basic restorative care, 50% coinsurance for major restorative care and 50% coinsurance for orthodontia (for children under age 19). The plan has an annual maximum benefit of \$1,750 per person.</p> <p>Most retirees pay the full cost of dental coverage if they enroll. CSW employees who retire before January 1, 1993, contribute nothing to enroll for dental coverage. Former CSW employees retiring after January 1, 1993, who were either retired or had attained age 50 with ten years of service as of January 1, 2001, pay 40% (42% for spouses).</p>

Changes in Benefits Valued Since Prior Year

The valuation reflects the amendment to increase dependent and surviving spouse contributions for most spouses which decreased the postretirement welfare benefit cost. This amendment was first recognized at December 31, 2019 year-end disclosure and first included in expense for FY2020.

Overview of Benefits Provided by Funding Vehicles

Funding vehicle	Provides for
Non-union postretirement medical/dental VEBAs	9.5% of retiree medical benefits and 100% of dental benefits to non-union retirees
Union postretirement medical/dental VEBAs	100% of medical/dental benefits to union retirees.
Postretirement life insurance VEBA	Life insurance benefits for all retirees.
401(h) account	90.5% of retiree medical benefits for non-union retirees.

Appendix C: Results by business unit

AMERICAN ELECTRIC POWER
NON-UMWA POSTRETIREMENT WELFARE PLAN
SUMMARY OF PLAN PARTICIPANTS FOR THE 2020 VALUATION

Location	Nonretired Participants		Retired Participants				
	Active	Total	Retiree	Dependent Spouse	Surviving Spouse	Disabled	Total
140 Appalachian Power Co - Distribution	747	747	1,035	636	332	46	2,049
215 Appalachian Power Co - Generation	527	527	988	638	213	26	1,865
150 Appalachian Power Co - Transmission	0	0	136	102	13	3	254
Appalachian Power Co - FERC	1,274	1,274	2,159	1,376	558	75	4,168
225 Cedar Coal Co	0	0	4	2	8	0	14
Appalachian Power Co. - SEC	1,274	1,274	2,163	1,378	566	75	4,182
211 AEP Texas Central Company - Distribution	706	706	801	465	265	22	1,553
147 AEP Texas Central Company - Generation	0	0	0	0	0	0	0
169 AEP Texas Central Company - Transmission	105	105	76	41	28	0	145
AEP Texas Central Co	811	811	877	506	293	22	1,698
119 AEP Texas North Company - Distribution	186	186	242	135	58	4	439
166 AEP Texas North Company - Generation	0	0	82	41	34	0	157
192 AEP Texas North Company - Transmission	49	49	32	16	10	0	58
AEP Texas North Co.	235	235	356	192	102	4	654
AEP Texas	1,046	1,046	1,233	698	395	26	2,352
170 Indiana Michigan Power Co - Distribution	375	375	598	305	203	5	1,111
132 Indiana Michigan Power Co - Generation	167	167	349	229	77	3	658
190 Indiana Michigan Power Co - Nuclear	781	781	512	314	87	1	914
120 Indiana Michigan Power Co - Transmission	82	82	128	83	21	2	234
280 Ind Mich River Transp LkLn	144	144	130	52	32	12	226
Indiana Michigan Power Co - SEC	1,549	1,549	1,717	983	420	23	3,143
110 Kentucky Power Co - Distribution	178	178	193	108	38	12	351
117 Kentucky Power Co - Generation	21	21	186	126	52	11	375
180 Kentucky Power Co - Transmission	0	0	15	9	1	0	25
600 Kentucky Power Co - Kammer Actives	0	0	0	0	0	0	0
701 Kentucky Power Co - Mitchell Actives	162	162	0	0	0	0	0
702 Kentucky Power Co - Mitchell Inactives	0	0	133	89	0	0	222
Kentucky Power Co.	361	361	527	332	91	23	973
250 Ohio Power Co - Distribution	1,093	1,093	1,530	868	448	32	2,878
160 Ohio Power Co - Transmission	1	1	185	120	58	2	365
Ohio Power Co	1,094	1,094	1,715	988	506	34	3,243
167 Public Service Co of Oklahoma - Distribution	453	453	510	296	152	9	967
198 Public Service Co of Oklahoma - Generation	260	260	216	135	51	6	408
114 Public Service Co of Oklahoma - Transmission	55	55	59	38	16	1	114
Public Service Co. of Oklahoma	768	768	785	469	219	16	1,489
159 Southwestern Electric Power Co - Distribution	392	392	327	190	75	12	604
168 Southwestern Electric Power Co - Generation	463	463	299	191	83	11	584
161 Southwestern Electric Power Co - Texas - Distribution	148	148	174	108	45	10	337
111 Southwestern Electric Power Co - Texas - Transmission	0	0	0	0	0	0	0
194 Southwestern Electric Power Co - Transmission	64	64	53	34	15	0	102
Southwestern Electric Power Co	1,067	1,067	853	523	218	33	1,627
230 Kingsport Power Co - Distribution	39	39	51	29	12	1	93
260 Kingsport Power Co - Transmission	0	0	9	4	1	0	14
Kingsport Power Co.	39	39	60	33	13	1	107
210 Wheeling Power Co - Distribution	34	34	62	33	21	1	117
200 Wheeling Power Co - Transmission	0	0	2	0	5	0	7
Wheeling Power Co.	34	34	64	33	26	1	124
103 American Electric Power Service Corporation	3,827	3,827	3,381	1,888	340	62	5,671
293 Elmwood	0	0	36	1	2	0	39
292 AEP River Operations LLC	0	0	155	43	4	0	202
American Electric Power Service Corporation	3,827	3,827	3,572	1,932	346	62	5,912
270 Cook Coal Terminal	12	12	13	6	1	0	20
AEP Generating Company	12	12	13	6	1	0	20
104 Cardinal Operating Company	0	0	306	160	48	0	514
181 Ohio Power Co - Generation	88	88	1,139	703	290	9	2,141
AEP Generation Resources - FERC	88	88	1,445	863	338	9	2,655
290 Conesville Coal Preparation Company	0	0	12	9	1	0	22
AEP Generation Resources - SEC	88	88	1,457	872	339	9	2,677
171 CSW Energy, Inc	0	0	7	2	1	0	10
175 AEP Energy Partners	93	93	7	2	1	0	10
419 Onsite Partners	4	4	0	0	0	0	0
AEP Energy Supply	185	185	1,471	876	341	9	2,697
143 AEP Pro Serv, Inc	0	0	1	1	0	0	2
AEP Pro Serv, Inc	0	0	1	1	0	0	2
245 Dolet Hills	104	104	55	50	2	22	129
Dolet Hills	104	104	55	50	2	22	129
Total	11,360	11,360	14,229	8,302	3,144	325	26,000

April 2020

WillisTowersWatson

AMERICAN ELECTRIC POWER
NON-UMWA POSTRETIREMENT WELFARE PLAN
2020 NET PERIODIC POSTRETIREMENT BENEFIT COST

Location	Accumulated Postretirement Benefit Obligation	Expected Net Benefit Payments	Fair Value of Assets	Service Cost	Interest Cost	Expected Return on Assets	*Other Cost		Total *Other* Cost	Net Periodic Postretirement Benefit Cost
							Amortizations			
							PSC	(G)/L		
140 Appalachian Power Co - Distribution	\$92,767,341	\$7,258,184	\$138,872,595	\$590,979	\$2,962,037	(\$7,449,063)	(\$5,152,076)	\$473,360	(\$9,165,742)	(\$8,574,763)
215 Appalachian Power Co - Generation	79,324,312	6,736,828	118,748,397	463,327	2,522,737	(6,369,610)	(4,212,812)	404,765	(7,654,920)	(7,191,593)
150 Appalachian Power Co - Transmission	8,708,583	594,655	13,036,738	0	277,651	(699,285)	(786,390)	44,437	(1,163,587)	(1,163,587)
Appalachian Power Co - FERC	\$180,800,236	\$14,589,667	\$270,657,730	\$1,054,306	\$5,762,425	(\$14,517,958)	(\$10,151,278)	\$922,562	(\$17,984,249)	(\$16,929,943)
225 Cedar Coal Co	293,690	39,154	439,654	0	9,051	(23,583)	(8,365)	1,499	(21,398)	(21,398)
Appalachian Power Co - SEC	\$181,093,926	\$14,628,821	\$271,097,384	\$1,054,306	\$5,771,476	(\$14,541,541)	(\$10,159,643)	\$924,061	(\$18,005,647)	(\$16,951,341)
211 AEP Texas Central Company - Distribution	\$65,453,935	\$4,500,246	\$97,984,460	\$516,956	\$2,103,388	(\$5,255,842)	(\$3,920,168)	\$333,989	(\$6,738,633)	(\$6,221,677)
147 AEP Texas Central Company - Generation	0	0	0	0	0	0	(15,337)	0	(15,337)	(15,337)
169 AEP Texas Central Company - Transmission	6,731,096	428,755	10,076,442	80,255	217,758	(540,496)	(395,865)	34,346	(684,257)	(604,002)
AEP Texas Central Co	\$72,185,031	\$4,929,001	\$108,060,902	\$597,211	\$2,321,146	(\$5,796,338)	(\$4,331,370)	\$368,335	(\$7,438,227)	(\$6,841,016)
119 AEP Texas North Company - Distribution	19,740,032	1,375,197	29,550,804	146,395	633,746	(1,585,092)	(1,287,643)	100,727	(2,138,262)	(1,991,867)
166 AEP Texas North Company - Generation	3,756,068	352,974	5,622,829	0	118,173	(301,606)	(69,426)	19,166	(233,693)	(233,693)
192 AEP Texas North Company - Transmission	3,008,185	197,375	4,503,249	31,611	97,083	(241,552)	(235,815)	15,350	(364,934)	(333,323)
AEP Texas North Co	\$26,504,285	\$1,925,546	\$39,676,882	\$178,006	\$849,002	(\$2,128,250)	(\$1,592,884)	\$135,243	(\$2,736,889)	(\$2,558,883)
AEP Texas	\$98,689,316	\$6,854,547	\$147,737,784	\$775,217	\$3,170,148	(\$7,924,588)	(\$5,924,254)	\$503,578	(\$10,175,116)	(\$9,399,899)
170 Indiana Michigan Power Co - Distribution	\$43,940,431	\$3,618,969	\$65,778,771	\$335,830	\$1,401,888	(\$3,528,343)	(\$2,628,491)	\$224,213	(\$4,530,733)	(\$4,194,903)
132 Indiana Michigan Power Co - Generation	28,924,142	2,484,812	43,299,405	116,796	917,684	(2,322,560)	(1,869,038)	147,590	(3,128,324)	(3,009,528)
190 Indiana Michigan Power Co - Nuclear	52,213,460	3,328,173	78,163,485	781,244	1,694,356	(4,192,654)	(3,595,630)	266,427	(5,827,501)	(5,046,257)
120 Indiana Michigan Power Co - Transmissson	9,643,864	654,005	14,436,853	72,723	309,944	(774,386)	(603,272)	49,209	(1,018,505)	(945,782)
280 Ind Mich River Transp Lakin	10,825,023	772,086	16,205,046	123,011	348,649	(869,231)	(817,161)	55,236	(1,282,507)	(1,159,496)
Indiana Michigan Power Co - SEC	\$145,546,920	\$10,858,045	\$217,883,560	\$1,429,604	\$4,672,521	(\$11,687,174)	(\$8,513,592)	\$742,675	(\$15,785,570)	(\$14,355,966)
110 Kentucky Power Co - Distribution	\$18,491,102	\$1,332,912	\$27,681,157	\$120,885	\$592,381	(\$1,484,805)	(\$1,220,699)	\$94,354	(\$2,018,769)	(\$1,897,884)
117 Kentucky Power Co - Generation	15,043,942	1,568,896	22,520,763	19,869	471,429	(1,208,003)	(618,664)	76,764	(1,278,474)	(1,258,005)
180 Kentucky Power Co - Transmission	804,115	54,004	1,203,759	0	25,652	(64,569)	(198,619)	4,103	(233,433)	(233,433)
600 Kentucky Power Co - Kammer Actives	0	0	0	0	0	0	(42,530)	0	(42,530)	(42,530)
701 Kentucky Power Co - Mitchell Actives	4,187,507	30,706	6,268,693	158,382	142,912	(336,250)	(164,933)	21,367	(336,904)	(178,522)
702 Kentucky Power Co - Mitchell Inactives	8,335,065	872,196	12,477,582	0	260,783	(669,292)	(206,988)	42,531	(572,966)	(572,966)
Kentucky Power Co	\$46,861,731	\$3,858,714	\$70,151,954	\$299,136	\$1,493,157	(\$3,762,919)	(\$2,452,433)	\$239,119	(\$4,483,076)	(\$4,183,940)
250 Ohio Power Co - Distribution	\$119,527,554	\$9,631,789	\$178,932,601	\$863,416	\$3,815,267	(\$9,597,863)	(\$5,960,988)	\$609,908	(\$11,133,676)	(\$10,270,260)
160 Ohio Power Co - Transmission	12,182,709	1,015,957	18,237,500	1,314	385,446	(978,251)	(1,038,977)	62,164	(1,568,304)	(1,568,304)
Ohio Power Co	\$131,710,263	\$10,647,746	\$197,170,101	\$864,730	\$4,200,713	(\$10,576,114)	(\$6,999,965)	\$672,072	(\$12,703,294)	(\$11,838,564)
167 Public Service Co of Oklahoma - Distribution	\$40,142,975	\$2,961,725	\$60,093,984	\$372,130	\$1,288,527	(\$3,223,414)	(\$2,502,138)	\$204,836	(\$4,232,189)	(\$3,860,059)
198 Public Service Co of Oklahoma - Generation	20,513,170	1,351,398	30,708,190	231,615	662,461	(1,647,173)	(1,511,530)	104,672	(2,391,570)	(2,159,955)
114 Public Service Co of Oklahoma - Transmission	4,792,689	359,687	7,174,620	39,355	153,570	(384,843)	(316,358)	24,455	(523,176)	(483,821)
Public Service Co of Oklahoma	\$65,448,814	\$4,672,810	\$97,976,794	\$643,100	\$2,104,558	(\$5,255,430)	(\$4,330,026)	\$333,963	(\$7,146,935)	(\$6,503,835)
159 Southwestern Electric Power Co - Distribution	\$29,601,478	\$1,894,668	\$44,313,376	\$304,712	\$955,896	(\$2,376,949)	(\$1,812,585)	\$151,046	(\$3,082,592)	(\$2,777,880)
168 Southwestern Electric Power Co - Generation	29,946,567	1,826,827	44,829,974	347,357	969,802	(2,404,659)	(2,156,457)	152,807	(3,438,507)	(3,091,150)
161 Southwestern Electric Power Co - Texas - Distribution	14,330,286	1,095,247	21,452,420	115,406	458,783	(1,150,698)	(951,750)	73,123	(1,570,542)	(1,455,136)
111 Southwestern Electric Power Co - Texas - Transmission	0	0	0	0	0	0	0	0	0	0
194 Southwestern Electric Power Co - Transmission	4,456,006	321,948	6,670,635	45,740	143,289	(357,810)	(282,953)	22,737	(474,737)	(428,997)
Southwestern Electric Power Co	\$78,334,337	\$5,138,690	\$117,266,405	\$813,215	\$2,527,770	(\$6,290,116)	(\$5,203,745)	\$399,713	(\$8,566,378)	(\$7,753,163)
230 Kingsport Power Co - Distribution	\$3,952,456	\$312,734	\$5,916,822	\$38,874	\$126,596	(\$317,376)	(\$179,346)	\$20,168	(\$349,958)	(\$311,084)
260 Kingsport Power Co - Transmission	442,510	41,000	662,437	0	13,932	(35,533)	(40,653)	2,258	(59,996)	(59,996)
Kingsport Power Co	\$4,394,966	\$353,734	\$6,579,259	\$38,874	\$140,528	(\$352,909)	(\$219,999)	\$22,426	(\$409,954)	(\$371,080)
210 Wheeling Power Co - Distribution	\$4,664,671	\$379,614	\$6,983,007	\$30,113	\$148,715	(\$374,565)	(\$261,861)	\$23,802	(\$463,909)	(\$433,795)
200 Wheeling Power Co - Transmission	115,186	20,479	172,433	0	3,466	(9,249)	(2,670)	588	(7,865)	(7,865)
Wheeling Power Co	\$4,779,857	\$400,093	\$7,155,440	\$30,113	\$152,181	(\$383,814)	(\$264,531)	\$24,390	(\$471,774)	(\$441,661)
103 American Electric Power Service Corporation	\$298,226,553	\$19,528,718	\$446,444,783	\$3,192,250	\$9,627,211	(\$23,947,092)	(\$17,449,627)	\$1,521,747	(\$30,247,761)	(\$27,055,511)
293 Elmwood	760,412	41,416	1,138,336	0	24,416	(61,060)	(276,151)	3,880	(308,915)	(308,915)
292 AEP River Operations LLC	5,442,203	450,153	8,146,971	0	172,225	(437,000)	(1,248,263)	27,770	(1,485,268)	(1,485,268)
American Electric Power Service Corporation	\$304,429,168	\$20,020,287	\$455,730,090	\$3,192,250	\$9,823,852	(\$24,445,152)	(\$18,974,041)	\$1,553,397	(\$32,041,944)	(\$28,849,694)
270 Cook Coal Terminal	\$778,057	\$59,988	\$1,164,750	\$7,382	\$24,938	(\$62,477)	(\$68,165)	\$3,970	(\$101,734)	(\$94,352)
AEP Generating Company	\$778,057	\$59,988	\$1,164,750	\$7,382	\$24,938	(\$62,477)	(\$68,165)	\$3,970	(\$101,734)	(\$94,352)
104 Cardinal Operating Company	\$17,246,220	\$1,752,760	\$25,817,570	\$0	\$540,439	(\$1,384,843)	(\$1,127,132)	\$88,002	(\$1,883,534)	(\$1,883,534)
181 Ohio Power Co - Generation	78,458,753	7,726,376	117,452,657	81,426	2,465,375	(6,300,107)	(4,407,457)	400,348	(7,841,841)	(7,760,415)
AEP Generation Resources - FERC	\$95,704,973	\$9,479,136	\$143,270,227	\$81,426	\$3,005,814	(\$7,684,950)	(\$5,534,589)	\$488,350	(\$9,725,375)	(\$9,643,949)
290 Conesville Coal Preparation Company	888,047	93,627	1,329,405	0	27,773	(71,309)	(52,190)	4,531	(91,195)	(91,195)
AEP Generation Resources - SEC	\$96,593,020	\$9,572,763	\$144,599,632	\$81,426	\$3,033,587	(\$7,756,259)	(\$5,586,779)	\$492,881	(\$9,816,570)	(\$9,735,144)
171 CSW Energy, Inc	263,205	15,005	394,018	0	8,440	(21,135)	(15,452)	1,343	(26,804)	(26,804)
175 AEP Energy Partners	1,466,460	45,695	2,195,289	67,623	49,877	(117,754)	(9,001)	7,483	(69,395)	(1,772)
419 Onsite Partners	26,849	0	40,193	1,979	951	(2,158)	(24)	137	(1,092)	887
AEP Energy Supply	\$98,349,534	\$9,633,463	\$147,229,132	\$151,028	\$3,092,855	(\$7,897,304)	(\$5,611,256)	\$501,844	(\$9,913,861)	(\$9,762,833)
143 AEP Pro Serv, Inc	\$93,765	\$3,470	\$140,366	\$0	\$3,037	(\$7,529)	(\$1,193)	\$478	(\$5,207)	(\$5,207)
AEP Pro Serv, Inc	\$93,765	\$3,470	\$140,366	\$0	\$3,037	(\$7,529)	(\$1,193)	\$478	(\$5,207)	(\$5,207)
245 Dolet Hills	\$6,721,096	\$485,438	\$10,061,472	\$126,744	\$218,034	(\$539,693)	(\$3,982)	\$34,295	(\$291,346)	(\$164,602)
Dolet Hills	\$6,721,096	\$485,438	\$10,061,472	\$126,744	\$218,034	(\$539,693)	(\$3,982)	\$34,295	(\$291,346)	(\$164,602)
Total	\$1,167,231,750	\$87,615,846	\$1,747,344,491	\$9,425,699	\$37,395,768	(\$93,726,760)	(\$69,726,825)	\$5,955,981	(\$120,101,836)	(\$110,676,137)

American Electric Power

UMWA Postretirement Health Care Plan

Actuarial Valuation Report
Postretirement Welfare Cost for Fiscal Year Beginning
January 1, 2020 under U.S. GAAP

April 2020

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Purposes of valuation

American Electric Power (AEP) engaged Willis Towers Watson US LLC (Willis Towers Watson) to perform an actuarial valuation of its postretirement welfare program.

As requested by AEP, this report documents the results of an actuarial valuation of the UMWA Postretirement Health Care Plan (the Plan) as of January 1, 2020.

The primary purpose of this valuation is to determine the Net Periodic Postretirement Benefit Cost/(Income) (Benefit Cost), in accordance with FASB Accounting Standards Codification Topic 715 (ASC 715) for the fiscal year beginning January 1, 2020. It is anticipated that a separate report will be prepared for year-end financial reporting and disclosure purposes.

Limitations

This valuation has been conducted for the purposes described above and may not be suitable for any other purpose. In particular, please note the following:

1. There may be certain events that have occurred since the valuation date that are not reflected in the current valuation.
2. This report does not provide information for plan reporting under ASC 965.

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Section 1: Summary of key results

Benefit cost, plan assets & obligations

All monetary amounts shown in U S Dollars

Fiscal Year Beginning		01/01/2020	01/01/2019
Benefit Cost/ (Income)	Net periodic postretirement benefit cost/(income)	784,070	2,840,606
	Benefit cost/(income) due to special events	0	0
	Total benefit cost/(income)	784,070	2,840,606
Measurement Date		01/01/2020	01/01/2019
Plan Assets	Fair value of plan assets (FVA)	42,184,746	34,849,688
Benefit Obligations	Accumulated postretirement benefit obligation (APBO)	(76,631,366)	(87,088,522)
Funded Ratio	Fair value of plan assets to APBO	55.0%	40.0%
Accumulated Other Comprehensive (Income)/Loss	Net prior service cost/(credit)	0	0
	Net loss/(gain)	374,790	18,123,337
	Total accumulated other comprehensive (income)/loss (pre-tax)	374,790	18,123,337
Assumptions	Discount rate	3.50%	4.35%
	Expected long-term rate of return on plan assets	6.25%	7.00%
	Current health care cost trend rate	6.00%	6.25%
	Ultimate health care cost trend rate	4.50%	5.00%
	Year of ultimate trend rate	2026	2024
Participant Data	Census date	01/01/2020	01/01/2019

Employer Contributions

Employer contributions are the amounts paid by AEP to provide for postretirement benefits, net of participant contributions and Medicare subsidy for non-Cook Coal locations plus the Net Periodic Benefit Cost for Cook Coal.

AEP's funding policy for non-Cook Coal locations is to pay claims costs for the year and administrative expenses, less participant contributions and any Medicare Part D subsidy (RDS) received. For Cook Coal, the funding policy is to contribute an amount equal to the postretirement welfare cost net of retiree drug subsidy payments received for Cook Coal retirees (the sum of which can be no less than zero). We understand the sponsor may deviate from this policy, as permitted by its terms, based on cash, tax or other considerations.

Comments on results

The cost of the postretirement welfare plan is determined in accordance with generally accepted accounting principles in the U.S. ("U.S. GAAP"). The fiscal 2020 postretirement welfare benefit cost for the plan is \$784,070. Under U.S. GAAP, the funded position (fair value of plan assets less the projected benefit obligation, or "APBO") of each postretirement welfare plan at the plan sponsor's fiscal year-end (measurement date) is required to be reported as a liability. The APBO is the actuarial present value of benefits attributed to service rendered prior to the measurement date, taking into consideration expected future pay increases for pay-related plans. The plan's overfunded (underfunded) APBO as of January 1, 2020, was \$(34,446,620), based on the fair value of plan assets of \$42,184,746 and the APBO of \$76,631,366.

Fiscal year-end financial reporting information and disclosures are prepared before detailed participant data and full valuation results are available. Therefore, the postretirement benefit asset (liability) at December 31, 2019, was derived from a roll forward of the January 1, 2019 valuation results, adjusted for the year-end discount rate and asset values, as well as significant changes in plan provisions and participant population. The current fiscal year-end financial reporting information will be developed based on the results of the January 1, 2020 valuation, projected to the end of the year and similarly adjusted for the year-end discount rate and asset values, as well as significant changes in plan provisions and participant population.

Change in net periodic cost

The postretirement welfare cost decreased from \$2,840,606 in fiscal 2019 to \$784,070 in fiscal 2020, as set forth below:

All monetary amounts shown in U.S. Dollars

(\$ in millions)	Postretirement Welfare Cost
Prior year	2.8
Change due to:	
■ Expected based on prior valuation and contributions during prior year	(0.1)
■ Unexpected noninvestment experience	0.0
■ Unexpected investment experience	(0.4)
■ Assumption changes	(1.5)
■ Changes in substantive plan	0.0
Current year	0.8

Significant reasons for these changes include the following:

- The discount rate decreased by 85 basis points compared to the prior year which decreased the postretirement welfare cost.
- Actual asset returns during 2019 were greater than the assumed rate of 7.00% which decreased the postretirement welfare cost.
- The expected return on asset assumption was decreased from 7.00% to 6.25%, which increased the postretirement welfare cost.
- The per capita cost assumptions were updated to reflect another year of both experience and legislative updates repealing the Cadillac Plan tax which decreased the postretirement welfare cost.
- The base mortality scale has been updated from RP-2014, factored to 2006, to Pri-2012 (using contingent survivor tables only after retiree death) and the mortality improvement scale has been updated from a modified version of MP-2018 adjusted to reflect 75% of the long-term improvement rates to a modified version of MP-2019 adjusted to reflect 75% of the long-term improvement rates. These two mortality assumption changes each decreased the postretirement welfare cost.
- The ultimate medical cost trend rate assumption was updated from reaching 5.00% in 2024 to 4.50% in 2026 which decreased the postretirement welfare cost.

Basis for valuation

Appendix A summarizes the assumptions and methods used in the valuation. Appendix B summarizes our understanding of the principal provisions of the plan being valued.

Changes in assumptions

The following assumptions were revised for the 2020 valuation: mortality, discount rate, per capita claims costs, trend rates and expected return on assets.

Changes in methods

None.

Changes in benefits valued

None.

Actuarial certification

This valuation has been conducted in accordance with generally accepted actuarial principles and practices. However, please note the information discussed below regarding this valuation.

Reliances

In preparing the results presented in this report, we have relied upon information regarding plan provisions, participants, assets, and sponsor accounting policies and methods provided by AEP and other persons or organizations designated by AEP. See the Sources of Data and Other Information section of Appendix A for further details. We have relied on all the data and information provided as complete and accurate. We have reviewed this information for overall reasonableness and consistency, but have neither audited nor independently verified this information. Based on discussions with and concurrence by the plan sponsor, assumptions or estimates may have been made if data were not available. We are not aware of any errors or omissions in the data that would have a significant effect on the results of our calculations. The results presented in this report are directly dependent upon the accuracy and completeness of the underlying data and information. Any material inaccuracy in the data, assets, plan provisions or other information provided to us may have produced results that are not suitable for the purposes of this report and such inaccuracies, as corrected by AEP, may produce materially different results that could require that a revised report be issued.

Measurement of benefit obligations, plan assets and balance sheet adjustments

Census date/measurement date

The measurement date is January 1, 2020. The benefit obligations were measured as of January 1, 2020 and are based on participant data as of the census date, January 1, 2020.

Plan assets and balance sheet adjustments

Information about the fair value of plan assets and the general ledger account balances for the other postretirement benefit plan cost at December 31, 2019, which reflect the expected funded status of the plans before adjustment to reflect the funded status based on the year-end measurements, and differences between the expected Medicare Part D subsidies and amounts received during the year was reviewed for reasonableness and consistency, but no audit was performed.

Accumulated other comprehensive (income)/loss amounts shown in the report are shown prior to adjustment for tax effects. Any tax effects in AOCI should be determined by AEP in consultation with its tax advisors and independent accountants.

Effects of Health Care Legislation

This valuation reflects our understanding of the relevant provisions of the Patient Protection and Affordable Care Act (PPACA) and Health Care and Education Reconciliation Act (HCERA) as amended by subsequent legislation. The IRS has yet to issue final guidance with respect to many aspects of these laws. It is possible that future guidance may conflict with our understanding of these laws based on currently available guidance and could therefore affect the results shown in this report. The valuation does not anticipate the effects of any possible future changes to PPACA or HCERA.

Assumptions and methods under U.S. GAAP

As required by U.S. GAAP, the actuarial assumptions and methods employed in the development of the other postretirement benefit cost and other financial reporting have been selected by AEP. Willis Towers Watson has concurred with these assumptions and methods, except for the expected rate of return on plan assets selected as of January 1, 2020. Evaluation of the expected return assumption was outside the scope of Willis Towers Watson's assignment and would have required substantial additional work that we were not engaged to perform. U.S. GAAP requires that each significant assumption "individually represent the best estimate of a particular future event."

The results shown in this report have been developed based on actuarial assumptions that, to the extent evaluated by Willis Towers Watson, we consider to be reasonable. Other actuarial assumptions could also be considered to be reasonable. Thus, reasonable results differing from those presented in this report could have been developed by selecting different reasonable assumptions.

A summary of the assumptions, methods and sources of data and other information used is provided in Appendix A. Note that any subsequent changes in methods or assumptions for the January 1, 2020 measurement date will change the results shown in this report.

Nature of actuarial calculations

The results shown in this report are estimates based on data that may be imperfect and on assumptions about future events that cannot be predicted with any certainty. The effects of certain plan provisions may be approximated or determined to be insignificant and therefore not valued. Reasonable efforts were made in preparing this valuation to confirm that items that are significant in the context of the actuarial liabilities or costs are treated appropriately and are not excluded or included inappropriately. Any rounding (or lack thereof) used for displaying numbers in this report is not intended to imply a degree of precision, which is not a characteristic of actuarial calculations.

If overall future plan experience produces higher benefit payments or lower investment returns than assumed, the relative level of plan costs reported in this valuation will likely increase in future valuations (and vice versa). Future actuarial measurements may differ significantly from the current measurements presented in this report due to many factors, including: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, increases or decreases expected as part of the natural operation of the methodology

used for the measurements (such as the end of an amortization period), and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements. Retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

See Basis for valuation in Section 1 above for a discussion of any material events that have occurred after the valuation date that are not reflected in this valuation.

Limitations on use

This report is provided subject to the terms set out herein and in our Master Consulting Services Agreement dated July 29, 2004 and any accompanying or referenced terms and conditions.

The information contained in this report was prepared for the internal use of AEP and its independent accountants in connection with our actuarial valuation of the other postretirement benefit plan as described in Purposes of valuation above. It is not intended for and may not be used for other purposes, and we accept no responsibility or liability in this regard. AEP may distribute this actuarial valuation report to the appropriate authorities who have the legal right to require AEP to provide them this report, in which case AEP will use best efforts to notify Willis Towers Watson in advance of this distribution. Further distribution to, or use by, other parties of all or part of this report is expressly prohibited without Willis Towers Watson's prior written consent. Willis Towers Watson accepts no responsibility for any consequences arising from any other party relying on this report or any advice relating to its contents.

Professional qualifications

The undersigned are members of the Society of Actuaries and meet the "Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States" relating to other postretirement benefit plans. Our objectivity is not impaired by any relationship between the plan sponsor and our employer, Willis Towers Watson US LLC.



Martin P. Franzinger, ASA, MAAA
NA Health & Benefits Consulting Actuary
Pricing Specialist



Chad M. Greenwalt, FSA, EA
Director, Retirement
Valuation Actuary



Joseph A. Perko, FSA, EA, MAAA
Director, Retirement
Valuation Actuary

The Pricing Specialist is responsible for developing and/or determining the reasonableness of retiree welfare plan trend and participation assumptions as well as assumed per capita claims costs (including the aging/morbidity assumption if applicable). The Valuation Actuary is responsible for other aspects of the valuation (e.g., developing and/or reviewing the reasonableness of other valuation assumptions and methods, ensuring that the valuation model reasonably reflects the substantive plan, preparing demographic data, performing the valuation, implementing the appropriate accounting or funding calculations, etc.).

Willis Towers Watson US LLC

April 2020

[http://natct.internal.towerswatson.com/clients/604598/AEP2020Valuations/Documents/UMWA Report 2020.docx](http://natct.internal.towerswatson.com/clients/604598/AEP2020Valuations/Documents/UMWA%20Report%20.docx)

Section 2: Accounting exhibits

2.1 Balance sheet asset/(liability)

All monetary amounts shown in U.S. Dollars

Measurement Date	01/01/2020	01/01/2019
A Development of Balance Sheet Asset/(Liability)¹		
1 Accumulated postretirement benefit obligation (APBO)	76,631,366	87,088,522
2 Fair value of plan assets (FVA)	42,184,746	34,849,688
3 Net balance sheet asset/(liability)	(34,446,620)	(52,238,834)
B Current and Noncurrent Classification		
1 Noncurrent asset	0	0
2 Current liability	(2,539,229)	(2,781,432)
3 Noncurrent liability	(31,907,391)	(49,457,402)
4 Net balance sheet asset/(liability)	(34,446,620)	(52,238,834)
C Accumulated Other Comprehensive (Income)/Loss		
1 Net prior service cost/(credit)	0	0
2 Net loss/(gain)	374,790	18,123,337
3 Accumulated other comprehensive (income)/loss ²	374,790	18,123,337
D Assumptions and Dates³		
1 Discount rate	3.50%	4.35%
2 Current health care cost trend rate	6.00%	6.25%
3 Ultimate health care cost trend rate	4.50%	5.00%
4 Year of ultimate trend rate	2026	2024
5 Census date	01/01/2020	01/01/2019

¹ Whether any amounts in this table that differ from those disclosed at year-end must be disclosed in subsequent interim financial statements should be determined.

² Amount shown is pre-tax and should be adjusted by plan sponsor for tax effects.

³ Rates are expressed on an annual basis where applicable.

2.2 Summary and comparison of postretirement benefit cost and cash flows

All monetary amounts shown in U.S. Dollars

Fiscal Year Ending		12/31/2020	12/31/2019
A Total Postretirement Benefit Cost			
1	Employer service cost	742,102	802,071
2	Interest cost	2,645,283	3,738,314
3	Expected return on assets	(2,603,315)	(2,425,432)
4	Subtotal	784,070	2,114,953
5	Transition obligation/(asset) amortization	0	0
6	Net prior service cost/(credit) amortization	0	0
7	Net loss/(gain) amortization	0	725,653
8	Amortization subtotal	0	725,653
9	Net periodic postretirement benefit cost/(income)	784,070	2,840,606
B Assumptions			
1	Discount rate	3.50%	4.35%
2	Expected long-term rate of return on plan assets	6.25%	7.00%
3	Current health care cost trend rate	6.00%	6.25%
4	Ultimate health care cost trend rate	4.50%	5.00%
5	Year ultimate trend rate is expected	2026	2024
C Census Date		01/01/2020	01/01/2019
D Assets at Beginning of Year			
1	Fair market value	42,184,746	34,849,688
E Cash Flow			
		Expected	Actual
1	Employer contributions ¹	2,539,229	3,192,019
2	Plan participants' contributions	0	0
3	Benefits paid by the Employer ²	2,724,293	2,820,420
4	Benefits paid from plan assets ²	1,128,540	855,126
5	Expected Medicare subsidy	(233,813)	(307,746)

¹ Reflects benefit payments and expenses (non-Cook Coal), as well as contributions to plan trust (Cook Coal), net of RDS

² Amounts shown are prior to offset for Medicare subsidy

2.3 Detailed results for postretirement welfare cost and funded position

All monetary amounts shown in U S Dollars

Detailed results	01/01/2020	01/01/2019
A Service Cost		
1 Medical	742,102	802,071
B Accumulated Postretirement Benefit Obligation [APBO]		
1 Medical		
a Participants currently receiving benefits	54,021,680	62,632,979
b Fully eligible active participants	12,404,399	14,221,354
c Other participants	10,205,287	10,234,189
d Total	76,631,366	87,088,522
C Assets		
1 Fair value [FV]	42,184,746	34,849,688
D Funded Position		
1 Overfunded (underfunded) APBO	(34,446,620)	(52,238,834)
E Amounts in Accumulated Other Comprehensive Income		
1 Transition obligation/(asset)	0	0
2 Net prior service cost/(credit)	0	0
3 Net loss/(gain)	374,790	18,123,337
4 Total	374,790	18,123,337
F Effect of Change in Health Care Cost Trend Rate		
1 One-percentage-point increase		
a Sum of service cost and interest cost	728,802	957,161
b APBO	12,673,333	14,657,548
2 One-percentage-point decrease		
a Sum of service cost and interest cost	(551,825)	(726,775)
b APBO	(10,008,775)	(11,555,233)

2.4 Expected benefit disbursements, administrative expenses and participant contributions

All monetary amounts shown in U S Dollars

		01/01/2020	01/01/2019
A	Medical		
1	Gross disbursements	3,852,833	4,179,253
2	Participant contributions	0	0
3	Net disbursements	3,852,833	4,179,253
B	RDS		
1	Gross disbursements	(233,813)	(232,581)
2	Participant contributions	0	0
3	Net disbursements	(233,813)	(232,581)
C	Total		
1	Gross disbursements	3,619,020	3,946,672
2	Participant contributions	0	0
3	Net disbursements	3,619,020	3,946,672

Section 3: Participant data

3.1 Summary of participant data

Census Date		01/01/2020	01/01/2019
A Participating Employees			
1 Number			
a	Fully eligible	18	19
b	Other	18	18
c	Total participating employees	36	37
2 Average age			
		49.2	48.7
3 Average credited service			
		20.8	20.4
4 Average future working life			
a	to expected retirement age	12.6	13.0
b	to full eligibility age	5.7	6.7
B Retirees, Dependents and Surviving Spouses			
1 Retirees			
a	Number under 65	29	30
b	Number 65 and older	168	181
c	Total	197	211
d	Number with married/family health care coverage	92	95
e	Number with single health care coverage	105	116
f	Average age	76.3	76.4
g	Distribution at January 1, 2020		
Age		Number	
Under 55		1	
55-59		2	
60-64		26	
65-69		30	
70-74		41	
75-79		26	
80-84		22	
85 and over		49	
C Dependents			
1 Number		92	95
2 Average age		69.5	68.8
3 Distribution at January 1, 2020			
Age		Number	
Under 55		2	
55-59		8	
60-64		18	
65-69		20	
70-74		21	
75-79		12	
80-84		6	
85 and over		5	

3.2 Age and service distribution of participating employees

Attained Age	Attained Years of Credited Service and Number								Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	
Under 25									
25-29									
30-34			2						2
35-39			5						5
40-44			4	1	3				8
45-49			2	1	1				4
50-54			2	1		2			5
55-59			1	1	2			1	5
60-64				1	1		1	3	6
65-69								1	1
70 & over									
Total	0	0	16	5	7	2	1	5	36 ¹
Average	Age	49.2	Number of Participants		Fully eligible	18	Males	36	
	Service	20.8			Other	18	Females	0	
Census data as of January 1, 2020									

¹ Ages and service totals for purposes of determining category are based on exact (not rounded) values

Appendix A: Statement of actuarial assumptions, methods and data sources

Economic Assumptions

Discount rate	3.50%
Medical cost trend rate	<ul style="list-style-type: none"> ■ 2020 6.00% ■ 2021 5.75 ■ 2022 5.50 ■ 2023 5.25 ■ 2024 5.00 ■ 2025 4.75 ■ 2026+ 4.50
Expected long-term rate of return on plan assets	6.25%

Demographic Assumptions

Mortality	<p>Base mortality rates use the headcount-weighted Pri-2012 mortality table (using contingent survivor tables only after retiree death) with blue collar adjustments.</p> <p>Mortality improvements are projected forward on a generational basis using Scale MP-2019 adjusted to reflect 75% of the long-term improvement rates.</p>
-----------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Disability	Rates vary by age as indicated by the following sample values:
------------	----------------------------------------------------------------

Age	Rate
20	0.120%
30	0.120
40	0.147
50	0.357
60	1.380

Termination	Annual rates vary by age as indicated by the following sample values:
-------------	-----------------------------------------------------------------------

Age	Rate
20	10.7%
30	5.9
40	2.1
≥45	0.0

Retirement

Annual rates vary by age as indicated by the following values:

Age	Rate	Age	Rate
55	6.0%	61	10.0%
56	6.5	62	12.0
57	7.0	63	15.0
58	7.5	64	20.0
59	8.0	65	50.0
60	9.0	66 – 69	30.0
		70	100.0

Percent married 95%

Spouses ages Wives three years younger than husbands.

Participation rates

- Employees – 100%
- Dependent – 100%

2020 Per Capita Claims Costs

Basis for Per Capita Claim Cost Assumptions	Age	Post-1993 retirees	Pre-1994 retirees	Medicare Part D RDS Subsidy
■ Overall average	< 65	19,108	19,518	N/A
	>=65	11,957	11,957	(1,002)
■ By age group	< 35	7,966	8,137	N/A
	35-49	8,641	8,826	N/A
	40-44	9,678	9,885	N/A
	45-49	11,306	11,549	N/A
	50-54	13,899	14,198	N/A
	55-59	16,762	17,122	N/A
	60-64	20,521	20,961	N/A
	65-69	10,681	10,681	(955)
	70-74	11,833	11,833	(1,038)
	75-79	12,661	12,661	(1,072)
	80-84	12,907	12,907	(1,061)
	85-89	12,577	12,577	(990)
	90-94	11,379	11,379	(855)
	>= 95	9,885	9,885	(687)

Administrative expenses \$452 per primary participant in 2020, increasing 3.5% per year.

Methods – Postretirement Welfare Cost and Funded Position

Service cost and APBO	Projected unit credit actuarial cost method, allocated in equal amounts, from the valuation date on or after date of hire to full eligibility date.
Net loss (gain)	Net loss (gain) in excess of 10% of the APBO is amortized on a straight-line basis over the expected average expected remaining service of active participants expected to benefit under the plan.
Benefits not valued	All benefits described in the Plan Provisions section of this report were valued. Willis Towers Watson has reviewed the plan provisions with AEP and based on that review is not aware of any significant benefits required to be valued that were not included. Certain plan provision changes were negotiated, but AEP has been unable to implement. These changes have not been valued
Timing of benefit payments	Benefit payments are assumed to be made uniformly throughout the year and on average at mid-year.
Change in assumptions and methods since prior valuation	<p>The discount rate was decreased from 4.35% to 3.50%.</p> <p>Anticipated per capita claims costs were updated to reflect recent experience and a legislative update repealing the Cadillac Plan tax.</p> <p>Mortality assumption updated to headcount-weighted base table Pri-2012 with improvements from 2012 using blue collar adjustment projected forward using MP-2019 adjusted to reflect 75% of long-term improvement rates.</p> <p>The ultimate medical cost trend rate was updated from reaching an ultimate rate of 5.00% in 2024 to 4.50% in 2026</p> <p>The expected return on assets was decreased from 7.00% to 6.25%.</p>

Sources of Data and Other Information

American Electric Power furnished the participant, benefit payments and assets information, as well as the accrued postretirement benefits cost as of December 31, 2019. Data were reviewed for reasonableness and consistency, but no audit was performed. We are aware of no errors or omissions in the data that would have a significant effect on the results of our calculation.

Assumptions Rationale - Significant Economic Assumptions

Discount rate	As required by U.S. GAAP, the discount rate was chosen by the plan sponsor based on market information on the measurement date.
Expected long-term return on plan assets	We understand that the expected return on assets assumption reflects the plan sponsor's estimate of future experience for trust asset returns, reflecting the plan's current asset allocation and any expected changes during the current plan year, current market conditions and the plan sponsor's expectations for future market conditions.
Inflation	Assumptions were selected by the plan sponsor and represent a best estimate of future experience, based on a combination of market conditions at the measurement date and future expectations consistent with other economic assumptions used. Differences between expectations of chained and unchained CPI were deemed immaterial

Per capita claims costs	<p>AEP supplied data on retiree medical and prescription drug claim payments for the 48-month period ending September 30, 2019.</p> <p>Separate medical and prescription drug claim rates were calculated by dividing annual paid claims (from October through September for each 12-month period) by covered lives over these four periods. These rates were then age-graded over standard Willis Towers Watson morbidity curves to generate quinquennial age-banded medical and prescription drug claims rates. These claim rates were trended to 2020 and a weighted average was taken to calculate the average pre-65 and post-65 claim rates for medical and prescription drugs. Weighting factors of 30% were used for the two most recent years, while factors of 20% were used for the other two years.</p>
Excise tax payments	<p>Retiree excise tax was eliminated due to legislation signed December 2019.</p>
Medicare Part D subsidy value	<p>We calibrated our modeling tool to reflect the 2020 cost of the current prescription drug plans for AEP's UMWA post-65 retirees. The tool employs a continuance table of annual retiree drug utilization levels, developed from analyzing the experience of many large employers reflecting utilization of 1.8 million Medicare-eligible members during 2016.</p> <p>After the plan-specific benefit provisions have been calibrated to current costs, the Modeler trends costs forward to 2020 at 7.00% per year. Actuarial equivalence was determined using the following two-prong approach outlined in the regulations for Medicare Part D:</p> <ul style="list-style-type: none"> ■ <i>Gross Value Test</i> – The Modeler calculates the value of standard Medicare Part D coverage (ignoring benefit enhancements from ACA) and compares it to AEP's plan costs. AEP's plan passed this test by being richer than the projected value of standard Medicare Part D coverage for these groups. ■ <i>Net Value Test</i> – The net value prong of the test compared the value of Standard Part D (ignoring benefit enhancements from ACA) coverage in 2020 less the greater of \$392.88 (the national average Part D premium) and 25.5% of the gross value of Part D coverage to the projected 2020 value of AEP coverage. <p>For plans deemed to be actuarially equivalent, the tool calculates the average expected value of the employer subsidy in 2020, using the continuance table calibrated to the prescription drug portion of AEP's plan cost. This produced an average 2020 per person annual employer subsidy of \$1,002. This rate was converted to rates varying by quinquennial age bands using Willis Towers Watson's standard morbidity factors.</p>

Claims cost trend rates	<p>Assumed increases were chosen by the plan sponsor and, as required by U.S. GAAP, they represent an estimate of future experience, informed by an analysis of recent plan experience, leading to select and ultimate assumed trend rates and reflecting the expected near-term effect of recently enacted program changes. In setting near term trend rates, other pertinent statistics were considered, including surveys on general medical cost increases. In setting the ultimate trend rate, considerations included assumed GDP growth consistent with the assumed future economic conditions inherent in other economic assumptions chosen by the client at the measurement date.</p> <p>After examining historical variability in trend rates, we believe the selected assumptions do not significantly conflict with what would be reasonable based on a combination of market conditions at the measurement date and future expectations consistent with other economic assumptions used, other than the discount rate.</p>
Medicare Part D subsidy trend rates	<p>The rates of increase in per capita Medicare Part D subsidy payments are assumed to equal the plan's assumed trend rates for prescription drug claims.</p>

Assumptions Rationale - Significant Demographic Assumptions

Healthy mortality	Assumptions were selected by the plan sponsor and, as required by U.S. GAAP, represent a best estimate of future experience.
Disabled mortality	Assumptions were selected by the plan sponsor and, as required by U.S. GAAP, represent a best estimate of future experience.
Termination	Termination rates are based on plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by termination patterns different than assumed.
Disability	Disability rates are based on plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by disability patterns different than assumed.
Retirement	Retirement rates are based on plan sponsor expectations for the future with periodic monitoring of observed gains and losses caused by retirement patterns different than assumed.
Participation	
<ul style="list-style-type: none"> ■ Participants 	The assumed coverage rates for participants and spouses reflect historical experience as well as anticipated future experience based on a 100% employer paid benefit.
<ul style="list-style-type: none"> ■ Covered dependents 	The assumed dependent coverage prevalence of future retirees is based on the dependent coverage observed among recent retirees.
<ul style="list-style-type: none"> ■ Covered spouse age 	The assumed age difference for spouses of future retirees is based on the age difference observed among recent retirees and general population statistics of the age difference for married individuals of retirement age.

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Appendix B: Summary of principal other postretirement benefit plan provisions

Medical Benefits

Eligibility	Participants are eligible upon retirement after age 55 with ten years of service or attaining age 55 with ten years of service after becoming permanently disabled or age 55 if retired with 20 years of service prior to age 50. Miners with less than ten years at retirement who are permanently and totally disabled as a result of a mine accident will retain a health services card for life.
Dependent eligibility	Eligible dependents are spouse and unmarried children who have not attained age 27.
Survivor eligibility	After the death of retiree or active employee eligible to retire, surviving spouses are eligible until death or remarriage subject to a \$2,000 per month earnings limit.
Retiree contributions	None.
Benefits provisions	<p>The UMWA medical plan covers substantially all medical services. Effective for retirements on or after January 1, 1994, a \$750 annual per family deductible is in place for non-Medicare-eligible retirees. Copayments are required only for outpatient physician visits (\$12 in-network and \$20 out-of-network, maximum of \$240 per family per 12 months) and for prescription drugs (\$5 retail in PPL, \$10 out of PPL, no copay mail order). A schedule of allowances for vision care is also provided. Benefits after age 65 are coordinated with Medicare.</p> <p>Expenses associated with the treatment of Black Lung Disease are not covered by this plan.</p>

Future Plan Changes

No future plan changes were recognized in determining postretirement welfare cost.

Changes in Benefits Valued Since Prior Year

There have been no changes in benefits valued since the prior year.

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Appendix C: Results by business unit

American Electric Power
UMWA Postretirement Welfare Plan
Summary of Plan Participants for the 2020 Valuation

	Nonretired Participants	Retired Participants			
	Active Participants	Retirees	Dependent Spouses	Surviving Spouses	Total
225 Cedar Coal Co.	0	55	38	71	164
270 Cook Coal Terminal	36	42	33	1	76
290 Conesville Coal Preparation Company	0	26	21	2	49
Total	36	123	92	74	289

AMERICAN ELECTRIC POWER
UMWA POSTRETIREMENT WELFARE PLAN
2020 NET PERIODIC POSTRETIREMENT BENEFIT COST

Location	Accumulated Postretirement Benefit Obligation	Expected Net Benefit Payments	Fair Value of Assets	Service Cost	"Other" Cost					Net Periodic Postretirement Benefit Cost
					Interest Cost	Expected Return on Assets	Amortizations		Total "Other" Cost	
							PSC	(G)/L		
225 Cedar Coal Co	24,456,268	1,938,201	0	0	822,343	0	0	0	822,343	822,343
Appalachian Power Co. - SEC	\$24,456,268	\$1,938,201	\$0	\$0	\$822,343	\$0	\$0	\$0	\$822,343	\$822,343
270 Cook Coal Terminal	42,088,585	1,079,791	42,184,746	742,102	1,480,340	(2,603,315)	0	0	(1,122,975)	(380,873)
AEP Generating Company	\$42,088,585	\$1,079,791	\$42,184,746	\$742,102	\$1,480,340	(\$2,603,315)	\$0	\$0	(\$1,122,975)	(\$380,873)
290 Conesville Coal Preparation Company	10,086,513	601,028	0	0	342,600	0	0	0	342,600	342,600
AEP Generation Resources - SEC	\$10,086,513	\$601,028	\$0	\$0	\$342,600	\$0	\$0	\$0	\$342,600	\$342,600
Total	\$76,631,366	\$3,619,020	\$42,184,746	\$742,102	\$2,645,283	(\$2,603,315)	\$0	\$0	\$41,968	\$784,070

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American Electric Power

Postemployment Benefit Plans

Actuarial Valuation Report
Postemployment Benefit Obligations as of
December 31, 2019, under U.S. GAAP

April 2020

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Purposes of valuation

American Electric Power (AEP) retained Willis Towers Watson US LLC (Willis Towers Watson) to perform an actuarial valuation of some of its postemployment benefit programs, including Long-Term Disability (income replacement), life insurance and health benefit continuation plans for employees receiving Long-Term Disability (LTD) benefits and health benefit continuation plans for COBRA beneficiaries (the Plan).

As requested by AEP, this report provides information for year-end financial reporting purposes required by FASB Accounting Standards Codification Topic 712 (ASC 712-10) for your fiscal year ending December 31, 2019. It also supplies the calculation of the Qualified Asset Account Limit under IRS Code Section 419A and compares it to the market value of plan assets as of December 31, 2019.

The exhibits present year-end financial reporting information in accordance with ASC 712-10 including net balance sheet position of the Plan, current year expected cash flow, plan asset information, participant information, the plan provisions on which the valuation is based, and the actuarial assumptions and methods used in the calculations.

Limitations

This valuation has been conducted for the purposes described above and may not be suitable for any other purpose. In particular, please note the following:

1. There may be certain events that have occurred since the valuation date that are not reflected in the current valuation
2. This report does not provide information for plan reporting under ASC 965
3. This report does not determine obligations on a plan termination basis, for which a separate extensive analysis would be required. No funded status measure included in this report is intended to assess, and none may be appropriate for assessing, the sufficiency of plan assets to cover the estimated cost of settling benefit obligations, as all such measures differ in some way from plan termination obligations
4. The comparisons of accounting obligations to assets presented in this report cannot be relied upon to determine the need for nor the amount of required future plan contributions. Nevertheless, such comparisons may be useful to assess the need for future contributions because they reflect current interest rates at the measurement date in determining benefit obligations. However, asset gains and losses, demographic experience different from assumed, changes in interest rates, future benefit accruals, if any, and other factors will all affect the need for and amount of future contributions. In addition, if a plan is not required by law to be funded, benefit payments may also be paid directly by the plan sponsor as they come due.

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